SECTION II
REGIONAL AND GEOSTRATEGIC DEVELOPMENTS

The following section groups topics relating to the regional and geostrategic consequences of China's emergence as a major force. These are China's economic and security impacts in Asia and the current challenges of Hong Kong and Taiwan; China's proliferation practices and the challenge of North Korea; and China's energy needs and strategies.

Chapter 4 examines China's increasing prominence in Asia. Through trade and investment, China has become increasingly interconnected with its Asian neighbors. Investors from Hong Kong, Taiwan, Japan, South Korea, and Southeast Asia are helping to fuel the export processing industries of China that, through global supply chains, deliver to the United States and Europe a wide array of manufactured goods. China's industrial growth has attracted foreign direct investment that might otherwise have gone elsewhere; some industries in Northeast and Southeast Asia have been displaced by competition from China, but Asian suppliers also have been increasingly feeding China's export processing industries and domestic markets. Large trade surpluses with China in 2002–03 have contributed to the growth of most East Asian economies.

Enhanced regional economic linkages have served China's political agenda. Through increasingly active and sophisticated bilateral and multilateral diplomacy, China is presenting itself as a country that is peacefully rising, offering, as it grows, win-win solutions for its economic partners in Asia. It has become more willing, in the past several years, to participate actively in multilateral fora on both economic and security issues—such as APEC, the ASEAN Regional Forum, and the Shanghai Cooperation Organization. Evidence indicates that this diplomatic strategy is making inroads for China, despite a wariness of China's growing military power, particularly on the part of Japan.

Cultivating relationships in Asia buys China time and space to pursue its economic development and harness its economic growth to military modernization. This is transforming the balance of military power in East Asia, particularly in the Taiwan Strait, China's main focus for a potential use of force.

Within the regional dynamic, Chapter 4 explores the difficult challenges for U.S. interests arising from China's relationships with Hong Kong and Taiwan. In these cases, China has not been offering win-win political solutions. China has positioned its military to deter Taiwan from taking political steps Beijing considers unacceptable moves toward independence and to coerce Taiwan to end the island's separate status. Clearly concerned about Taiwan President Chen Shui-bian's reelection and Chen's plan for constitu-

tional revision, China has not offered any vision for a workable resolution of cross-Strait conflict beyond unification under the "one country, two systems" formula. This formula, rejected in Taiwan, is being sorely tested in Hong Kong, where Chinese sovereignty is not disputed. China's National People's Congress has frustrated demands for greater democracy in Hong Kong by making unilateral decisions to block further development of constitutionally allowed self-governance, and Beijing has prohibited legislative debate on this matter in Hong Kong.

Chapter 5 looks at China's weapons proliferation practices and its role in the North Korean nuclear crisis. While becoming enmeshed in the capitalist economies of Asia and the West, China has maintained its traditional state patron-client relationship with North Korea. China has become a major diplomatic player in the ongoing standoff with North Korea over Pyongyang's development of nuclear weapons. As host of the Six Party Talks, China has helped bring North Korea to the table; but has not adequately employed its considerable political and economic leverage over North Korea to drive Pyongyang toward acceptance of the goal of achieving a complete, verifiable, and irreversible dismantlement of North Korea's nuclear weapons programs.

Even as China professes to support the goal of a non-nuclear Korean Peninsula and claims to oppose WMD proliferation generally, China's own proliferation practices remain an ongoing concern. Chinese state companies continue to pursue deals to sell WMD-related items to countries of concern to the United States. The United States has repeatedly imposed sanctions in response to these activities; but sanctions remain limited to penalizing offending companies, despite many of these companies' direct affiliation with top levels of the PRC government or military.

Lastly, Chapter 6 examines the impact of China's rapidly growing economy on its energy needs, the implications for global energy supplies, and how this impacts China's geopolitical relations. China has moved past Japan to rank second (behind the United States) in global energy consumption, and is the world's second largest oil consumer and its third largest oil importer. These trends have made China increasingly dependent on outside energy sources. China's energy demands and the means by which it is attempting to address them have put added pressure on global petroleum supplies and prices.

Energy needs have driven China closer to the Middle East and Africa, as well as neighbors in Central Asia, Russia, and the Pacific. China seeks to lock in secure energy supplies, especially new sources of gas and oil not subject to potential disruption in a time of conflict. China has sought energy cooperation with countries of concern to the United States, including Iran and Sudan, which are inaccessible to U.S. and other western firms. Some analysts have voiced suspicions that China may have offered WMD-related transfers as a component of some of its energy deals.

Taken as a whole, China's growing economic and political clout have important implications for its relations in Asia and beyond, with direct implications for U.S. diplomacy in Asia and for U.S. cross-Strait, nonproliferation, and energy security policies.

CHAPTER 4

CHINA'S REGIONAL ECONOMIC AND SECURITY IMPACTS AND THE CHALLENGES OF HONG KONG AND TAIWAN

"***REGIONAL ECONOMIC AND SECURITY IMPACTS.*** *The Commission shall assess the extent of China's "hollowing out" of Asian manufacturing economies, and the impact on United States economic and security interests in the region; [and] review the triangular economic and security relationship among the United States, Taipei and Beijing. . . .*" [P.L. 108–7, Division P, Sec. 2(c)(2)(F)]

KEY FINDINGS

- China is gaining influence in Asia through its rapidly increasing economic weight and successful diplomacy. China is strengthening bilateral economic and security ties with nearly all countries on its periphery and energizing regional trade and security groupings, such as the Shanghai Cooperation Organization (China, Russia, and four Central Asian states) and the multilateral fora of the Association of Southeast Asian Nations (ASEAN). As never before in modern times, countries throughout Asia are weighing the China factor in their external relations and economic strategies.
- During 2002–03, China became the single largest export market for Japan, South Korea, and Taiwan, eclipsing the United States. In Northeast and Southeast Asia, exports have been driven by China's surging demand for commodities, equipment, and industrial inputs. At the same time, employment, investment, and production in some industries in the region have been adversely affected by a shift of foreign direct investment (FDI) to China and the emergence of China as a major manufacturing power in product lines once dominated by other Asian manufacturers.
- China is extending its influence even as the United States is widely perceived in the region as preoccupied with Iraq, North Korea, and the global war on terrorism and paying less attention to the region's economic, trade, and development issues. The United States is seen as having allowed the regional trade liberalization mechanism of the Asia Pacific Economic Cooperation (APEC) process to atrophy in favor of pursuing bilateral free trade agreement (FTA) negotiations.
- China's leaders have rebuffed Hong Kong society's growing demand for direct elections and more responsive government. A recent decision of the National People's Congress Standing Committee (NPCSC) rules out until at least 2012 direct election of Hong Kong's chief executive or the full Legislative Council. This has dashed hopes for early achievement of universal suffrage in

Hong Kong and has seriously set back Hong Kong's ability, under the "one country, two systems" formula, to decide how to govern itself. The significant erosion of Hong Kong's autonomy is a matter to be considered under the terms of the U.S.-Hong Kong Policy Act.

- China has employed its economic and political leverage to isolate Taiwan further by excluding it from most regional economic fora and discouraging others from negotiating bilateral trade agreements with Taiwan, which is entering a critical period in its modern history. Under the terms of the Taiwan Relations Act (TRA), this development should be of concern to the United States.
- Taiwan faces the challenge of solidifying its own political identity and buttressing its security while still finding a way to support its trade and investment interests by gaining direct transport and communications links with the PRC. Business interests in both Taiwan and the United States see direct cross-Strait links as crucial to preventing Taiwan's further marginalization in a regional economy that is increasingly centered on China. There has been no formal cross-Strait dialogue on these matters since 1998.
- Cross-Strait tensions have increased in the past year. Factors include China's continuing military buildup and missile deployments opposite Taiwan, the holding of referenda in Taiwan on the questions of missile defense and cross-Strait relations, the reelection of Taiwan President Chen Shui-bian, and President Chen's proposal for constitutional revision in 2008—to be set in motion by a possible referendum in 2006—that the PRC has equated with an unacceptable timetable for independence.

OVERVIEW

In the past two years, China has become even more central to regional and global trade, investment, and production patterns than it was at the time of the Commission's first Report to Congress. The trends the Commission identified in 2002 accelerated as a result of China's December 2001 accession to the WTO and the attendant granting of Permanent Normal Trade Relations status to China.

In the past two years, China has linked its growing economic power with strong diplomatic initiatives throughout Asia. China's softer approach to the region has been dubbed a smile campaign or charm offensive, but it is more than just that—China has injected new energy into bilateral partnerships and multilateral trade and security arrangements.[1] China's active participation in regional groupings such as the Asia Pacific Economic Forum, the Shanghai Cooperation Organization (SCO), and One ASEAN Regional Forum reflects China's use of multilateralism as a tool for pursuing its economic and political interests.[2]

This regional diplomatic effort is designed to serve China's stated strategy of peace and development by promoting a stable security environment and its own access to the world trading system, while it concentrates on domestic economic development and strengthening its military.[3] It also raises considerable challenges for the United States' economic and security relations with the countries of Asia. Some observers consider the implications for longer-term

U.S. interests to be alarming. As one witness who testified before the Commission wrote: "China is patiently and systematically amassing a geopolitical presence of superpower proportions in Asia. Washington must start to take China seriously as a potential great power competitor in the region."[4]

China-Taiwan relations are entering another period of transformation as two contradictory trends play out. On the one hand, Taiwan investors, particularly those in the information technology (IT) sector, have been pouring money, managers, plant, and equipment into ventures on the mainland. Cross-Strait trade and investment flows are at an all-time high, with the direction of both investment and exports going largely from Taiwan to the mainland. Although mainland exports to Taiwan have increased, Taiwan tightly restricts inward investment from the PRC for security purposes. On the other hand, political attitudes on both sides of the Strait have hardened. There is effectively no public dialogue across the Taiwan Strait. China continues to work to isolate Taiwan internationally. As the rest of Asia and the world establish direct links with Chinese ports, airports, investment zones, and financial centers, Taiwan's potential as a platform for servicing trade and investments in China has dwindled. Taiwan is becoming marginalized further in the regional economy.

The Commission seeks to assess the degree of regional influence China has gained through its growing economic power and the implications for U.S. economic and security interests in the region. This assessment includes the questions of how economic integration and central-local political dynamics are affecting Hong Kong's health as a major international finance, services, and transport center; and how cross-Strait economic relations are influencing Taiwan's economy and security.

On December 4, 2003, the Commission held a hearing on *China's Growth as a Regional Economic Power: Impacts and Implications*. Witnesses from academia and research institutions testified on China's growing influence in Asia through its burgeoning diplomatic and commercial ties with neighboring countries and intra-Asian regional groups such as ASEAN.

During the September 25, 2003, hearing on *China's Exchange Rate, Investment, and Industrial Policies* and the February 12–13, 2004, field hearing in San Diego on *China as an Emerging Regional and Technology Power: Implications for U.S. Economic and Security Interests*, various panels discussed China's impact on regional economic trends, especially through its growing importance as a manufacturing hub within global supply networks.

From March 14 to 23, 2004, a delegation of Commission members and staff traveled to Tokyo, Hong Kong, and Taipei for discussions with officials, American and local business representatives, academics, and media representatives on regional economic, political, and security questions.

ANALYSIS AND FINDINGS

Regional Trade and Investment

Regional trade and investment patterns that emerged in the second half of the 1990s have become more pronounced in the past

two years. A high volume of inward FDI—the majority of it originating in East Asian economies—continues to fuel China's export-driven economic boom even as global levels of FDI have dropped.[5] China's December 2001 entry into the WTO locked open China's access to its key export market, the United States. This sharply reduced the perceived risk premium for FDI in China and intensified FDI inflow. This has implications for all regional economies but especially for the countries of Southeast Asia, which have already experienced a relative decline in FDI flows and could lag behind China in technological progress.[6]

China received the largest amount of inward FDI of any nation in 2002—$52.7 billion—after averaging about $40 billion per year for the previous seven years. As pointed out in the Commission's 2002 Report, FDI projects in China are concentrated on new, greenfield investments, whereas FDI directed into the United States generally takes the form of foreign purchases of existing American firms.[7] Global flows of FDI to China over the past seven years exceeded those to the rest of East Asia (excluding Hong Kong) combined, including Japan and Singapore. The large stock of FDI in China—estimated to be nearly $550 billion at the end of 2003[8]—is a reflection of China's becoming thoroughly enmeshed in global production networks.[9] As indicated in figures 4.1 and 4.2, the United States has contributed a relatively small share—on average about four percent—of China's annual flows and cumulative stock of FDI, the bulk of which is sourced from within Asia, notably Taiwan, Hong Kong, Japan, South Korea, Thailand, and Singapore.

Figure 4.1 World FDI Inflows Into Asia, 1997–2002 (Billions of U.S. dollars)

	1997	1998	1999	2000	2001	2002	1997–2002
China	$44.2	$43.8	$40.3	$40.8	$46.8	$52.7	**$268.6**
Hong Kong	11.4	14.8	24.6	61.9	23.8	13.7	**150.2**
China & Hong Kong	55.6	58.5	64.9	102.7	70.6	66.4	**418.8**
Japan	3.2	3.2	12.7	8.3	6.2	9.3	43.1
Indonesia	4.7	−0.4	0.0	0.0	0.0	−1.5	2.8
Korea, Rep. of	2.8	5.4	9.3	9.3	3.5	2.0	32.4
Malaysia	6.3	2.7	3.9	3.8	0.6	3.2	20.5
Philippines	1.2	1.8	0.6	1.3	1.0	1.0	7.0
Singapore	10.7	6.4	11.8	12.6	10.9	7.7	60.2
Taiwan	2.2	0.2	2.9	4.9	4.1	1.4	15.9
Thailand	3.6	5.1	3.6	3.4	3.8	1.1	20.5
Vietnam	2.6	1.7	1.5	1.3	1.3	1.2	9.6

Source: UN Conference on Trade and Development, **www.unctad.org**; time series figures revised 2003.

Figure 4.2 U.S. FDI Inflows Into Asia, 1997–2002 (Billions of U.S. dollars)

	1997	1998	1999	2000	2001	2002	1997–2002
Asia/Pacific	$13.7	$14.7	$21.0	$21.0	$14.7	$28.8	$113.9
Australia	1.2	6.3	4.9	0.9	−0.4	3.7	16.6
China	1.3	1.5	2.6	3.1	1.2	0.9	**10.6**
Hong Kong	3.8	1.9	4.2	4.3	4.4	2.0	**20.6**
China + HK	5.1	3.4	4.2	4.3	5.6	2.9	**25.5**
Indonesia	—	0.5	2.2	1.2	0.026	0.4	4.3
Japan	−0.3	6.4	5.2	8.1	2.3	4.5	26.2
Korea, Rep. of	0.7	0.6	1.2	1.2	1.3	1.4	6.5
Malaysia	0.7	−0.5	—	0.3	−0.004	9.4	9.9
Philippines	0.1	0.3	−0.3	—	−0.4	0.7	0.4
Singapore	3.7	0.3	3.0	2.7	3.8	11.4	24.9
Taiwan	0.7	−0.6	0.6	1.1	0.9	0.9	3.6
Thailand	—	0.4	1.1	0.5	0.8	0.9	3.7

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

China's entry into the WTO, increasing inflows of FDI, and the new production capacity built up in China have led to an unprecedented expansion of China's trade volume. China's total goods trade increased by twenty-one percent in 2002 and by thirty-seven percent in 2003 (with a forty percent rise in imports). Without taking into account transshipments of imports and exports through Hong Kong, China is now the fourth largest trading and exporting nation in the world, after the United States, Germany, and Japan; if Hong Kong's transshipment trade is included, China's total would exceed Japan's. By any measure, China became the third largest importing country in the world in 2003, behind only the United States and Germany.[10]

By the end of 2003, China became the single largest export market for Japan, South Korea, and Taiwan, eclipsing the United States. All three economies enjoyed significant trade surpluses with China in 2003 (Taiwan, $40 billion; Korea, $23 billion; Japan, $15 billion).[11] China's total trade turnover with the ASEAN countries rose to $78 billion in 2003, with China's imports from ASEAN nations up fifty percent, to $47 billion (versus $31 billion in China's exports to ASEAN), giving the ASEAN grouping a surplus of $16 billion.[12] These regional merchandise trade surpluses reflect China's centrality to global supply chains producing manufactured goods for developed country markets; they are the flip side of China's $124 billion trade surplus with the United States in 2003.

The economic center of gravity in Asia is shifting from Japan to China. Japanese policymakers are increasingly concerned about the long-term strategic consequences of China's rise. The ongoing shift

of production and FDI to China upset long-standing regional manufacturing networks centered on Japan. In the past several years, large Japanese international firms have recognized that establishing a production base in China is essential to their future financial health. In the 1980s and 1990s, Japanese firms dominated production chains set up in Southeast Asia that channeled exports of industrial inputs from Japan and finished manufactures from Southeast Asia to Japan and other world markets. During this period, Japanese companies outsourced a relatively small percentage of their production overseas, and spent a fairly low level of investment in China compared with other regions.[13]

After the Asian financial crisis (1997–98), the productivity of investment in Southeast Asia declined relative to China, and Japan found its product lines challenged by new production coming out of China. In the late 1990s and early 2000s, Japan increased its investments in China and sourced more of its production in China. In the late 1990s, Japanese companies and localities began to express serious concerns about the hollowing out of manufacturing sectors that had moved to China, but in the past few years the shift of production to China has only accelerated. The profitability of Japanese investments in China reportedly has also increased markedly in the past two years.[14]

South Korea's flow of investments into China amounts to less than five percent of total domestic investment and some Koreans see their companies' association with China as benefiting their own domestic economic reforms. Increased South Korean exports to China have helped bolster already buoyant relations between the Republic of Korea (ROK) and the PRC, whose economic interests seem more aligned than ever.[15] Some analysts believe the ROK economy has suffered dislocations from trade and investment ties with China, however. Korean heavy machinery manufacturers, for example, are reportedly transferring operations to the PRC. South Korea feels these economic shifts to China perhaps more than a larger Japan does. For example, Shanghai and Shenzhen ports have grown at double digits and surpassed Pusan to become the third and fourth busiest container ports in the world. South Korea's global textile exports dropped to a thirteen-year low in 2003 of $15.2 billion, largely as a result of increased competition from China. Meanwhile, a new trend suggests a possible Chinese strategy to gain greater economic advantage in the future: Chinese firms seeking Korean technology and experience are beginning to invest in Korea in strategic industrial sectors.[16]

Rapid growth in exports from the rest of Asia to feed China's manufacturing sector has taken some of the sting out of hollowing out. In 2003, most major Asian economies ran substantial trade surpluses with China. The question is whether China will continue to move up the technology ladder to such an extent that its current imports from the rest of Asia will slow or change in composition. Classical development economists contend that Japan, South Korea, Taiwan, and the ASEAN nations have no choice but to rise to China's challenge by advancing their own technological base if they want to remain competitive, maintain domestic employment, and improve standards of living.[17]

Chinese production and export of textiles and garments are expected to surge and remain at high levels following the complete phasing out of quotas under the WTO Multifiber Arrangement, as of January 1, 2005, and put added competitive pressure on marginal producers in South and Southeast Asia. According to a set of econometric models presented to the Commission, a combination of FDI diversion and increased Chinese textile and garment production due to the end of MFA quotas could lead to a net loss of national income in the countries of Southeast and South Asia if China's attraction of FDI is accompanied by technological advancement.[18]

China's Regional Diplomatic Offensive

China's regional diplomacy serves its global economic strategy, which is to maintain access to the open, multilateral trading system upon which its rapid growth depends. It also complements China's national security strategy by conditioning regional actors to its peaceful rise, a trend increasingly seen as economically positive and politically benign among many regional actors, notably South Korea and the ASEAN nations.

Asia is going through historic geopolitical changes due to the rise of China. The region is in search of a new order to accommodate China's growing power and influence and to maintain regional peace and stability.[19] China's strategy of promoting bilateral and regional dialogues, trade agreements, and confidence-building measures is consistent with its stated foreign policy goal of peace and development. Chinese media have lately begun to characterize China's emergence as a regional economic and political power as a peaceful rising (*heping jueqi*).[20]

The 2001 APEC summit meeting in Shanghai is a convenient demarcation line for a new assertiveness in China regional policies. Since then, China has shown (1) a more proactive stance in pursuing strategic partnership agreements and adding substance to them; (2) increased support for and participation in regional security mechanisms, notably the Shanghai Cooperation Organization, the ASEAN Regional Forum, and bilateral military exercises; and (3) an emphasis on its economic and political influence, while downplaying its growing military strength.[21]

China touts its policy of noninterference in the internal affairs of other states and contrasts its hands-off approach to that of the United States, which actively pursues an agenda to combat terrorism and to promote human rights and democratic governance. Aside from reiterating the importance of partners accepting its "one China" principle vis-à-vis Taiwan, China makes few political demands on its Asian neighbors. Needless to say, China does not push human rights, labor, or environmental standards in its diplomacy.

China's regional strategies are driven in part by its energy security needs, as discussed in Chapter 6. Major pipeline projects are being planned to connect China to oil and gas fields in Central Asia and the Russian Far East. Moreover, Chinese energy firms have signed long-term contracts to import liquefied natural gas from Australia, Indonesia, and Iran.

China has continued to promote the establishment or strengthening of regional multilateral institutions, such as the Bangkok Agreement, the Shanghai Cooperation Organization (China, Russia, and four Central Asian nations), and the ASEAN Plus One (China) and Plus Three (China, Japan, South Korea) fora.

China is extending its influence even as the United States is widely perceived in the region as preoccupied with Iraq, North Korea, and the global war on terrorism to the exclusion of regional economic, trade, and development issues. While pursuing a global agenda of bilateral free trade agreement negotiations, the United States is seen as having allowed the regional trade liberalization mechanism of the APEC process to atrophy.[22] On the other hand, the U.S. government has not directly challenged China's diplomatic gains in the region, seeming in general to welcome what could be considered healthy economic cooperation and confidence-building measures, such as China's recent search-and-rescue and naval exercises with the Pakistani, Indian, and French navies, respectively.

Chinese Initiatives in Southeast Asia

At the eighth ASEAN summit meeting in Phnom Penh, Cambodia, in November 2002, China's Premier Zhu Rongji announced several diplomatic initiatives. On behalf of the PRC government, he

- forgave the debts of Vietnam, Laos, Myanmar, and Cambodia;
- announced duty-free treatment of imports from Cambodia, Laos, and Myanmar and promised to extend most-favored-nation (MFN) treatment of imports from Vietnam;
- signed on to a Declaration on the Conduct of Parties in the South China Sea; and
- agreed to a framework agreement on the ASEAN-China Free Trade Area—an arrangement that China's Vice Premier Wen Jiabao had proposed in November 2001.[23]

On October 8, 2003, at the ninth ASEAN summit in Bali, Indonesia, China acceded to the 1976 Treaty of Amity and Cooperation—the founding nonaggression pact of the ASEAN grouping. China, soon followed by India, was the first non-ASEAN country to join the pact. The ASEAN governments and China also signed in Bali a Joint Declaration on Strategic Partnership for Peace and Prosperity, which lays out a program to strengthen cooperation on political, security, economic, social, and regional issues. They committed to an enhanced regional security dialogue as well as to the goal of expanding China-ASEAN trade to $100 billion by 2005.

China's proactive diplomacy with the ASEAN countries appears to be working. According to Sarasin Viraphol, a former Thai diplomat, "More and more, China is doing the things the United States used to do: cooperating, pushing trade, offering help. . . . People are less scared of China now."[24] Kavi Chongkittavorn, a senior editor of the Nation newspaper group in Thailand, says the ASEAN region has been seized by "a China fever, an excitement, [where] all anybody wants to talk about are the opportunities." A recent survey by the Bangkok-based Kasikorn Research Center showed that more than seventy-five percent of Thai respondents see China as Thailand's closest friend, compared to nine percent for the United States and fewer then eight percent for Japan.[25] Professor

Wang Gungwu, director of the East Asian Institute, National University of Singapore, testified to the Commission that China's proactive stance "has been a tremendous boost to ASEAN." He said China's involvement has led to Japan and South Korea showing new interest and has also affected how India and Australia see ASEAN; he expressed the hope that perhaps the United States would also pay more attention to ASEAN.[26]

Japanese Economic and Security Concerns[27]

The official Japanese position on China's rise remains what Prime Minister Koizumi said to visiting PRC National People's Congress Standing Committee Chairman Wu Bangguo on September 5, 2003: "China's growth is not a threat to, but an opportunity for, Japan." Of all the United States' friends and allies in the region, Japan nevertheless appears the most prepared to consider seriously how to respond to China's growing power and influence, both in coordination with the United States and on its own. For Japan, China is the number one issue for the economy and for Japan's future security, although this is often left unspoken.

Given China's high level of FDI, cutthroat internal competition among manufacturers, and low cost of production, Japanese companies have minimal pricing leverage over the manufactured goods they produce in the China market either for internal consumption or for export. Japanese companies exporting industrial inputs and capital equipment into the hot China market find themselves doing well, although Japanese industries face rising raw materials costs (for steel, chemicals, and fiber) largely because of huge and growing Chinese demand. Corporate profits in Japan thus may not benefit from the China factor as much as some had hoped.

As China moves up the technology ladder—in semiconductor manufacturing, biotechnology, telecommunications, and electronic equipment—the question arises of how Japan can fuel China's advance and still retain its own technological superiority over time. This is causing much reflection in Japan—as in the United States—about the need for a strategic reassessment of the needs of the country's innovation infrastructure, including venture capital sources, education and technical training, and research and development.

Japan shares with the United States some more immediate concerns about its companies' ability to compete with China's domestic producers—both in China's domestic market and in third markets—if certain PRC government policies are allowed to stand. The Japanese government, like the United States, is considering how to respond to China's attempts to set a new range of technical standards for new information technologies, such as software standards for advanced cell phones and DVD players and new encryption standards for wireless LANs. Like the United States, Japan sees China's discriminatory tax on imported semiconductor chips as violating WTO norms and has filed a WTO dispute settlement case in parallel with that of the United States.

In the security realm, there is a growing willingness among Japanese officials to discuss what Japan must do to prepare for the security challenges of an economically and militarily powerful China. Japanese national security officials have expressed the view that

Japan's national security would be directly affected by any conflict scenario involving Taiwan by virtue of Taiwan's proximity to Japanese islands and territorial seas. Chinese aggression toward Taiwan would thus not only affect Japan's security interests through the U.S.-Japan alliance, but also directly.

In shaping its defense forces, Japan considers a broad spectrum of possible conflict scenarios. While North Korea poses the most prominent and near-term threat, Japan is also taking note of China's acquisition and development of more sophisticated air and naval weapons systems as well as its ballistic missile force. Japan is procuring or indigenously producing systems that will be useful in countering a longer-term Chinese threat, such as AWACS, air-refueling tankers, AEGIS-equipped destroyers, maritime patrol aircraft, and the SM–3 surface-to-air missile. Japan faces challenges in maintaining a strong defense-industrial manufacturing and R&D base. Its national restrictions against exporting arms constrain its ability to reduce production costs and support R&D efforts across a range of capabilities. Even if export restrictions were eased in the context of supporting coproduction programs with the United States, Japan will still be required to focus on a limited range of technology priorities in funding future R&D and domestic weapons production.

Warming Relations with India

The Commission heard testimony that in recent years India and China have been moving closer in a shift that could affect the strategic realities of Asia. Economic ties are growing. Trade between India and China grew from a mere $264.8 million in 1991 to $4.3 billion in 2002.[28] Trade estimates for 2004–05 are closer to $7 billion, and trade is projected to reach $10 billion by 2005–06. China continues to draw in FDI at an order of magnitude higher than India ($52.7 billion vs. $5.5 billion in 2002). China is studying India's success in software development, while the popular surge for economic reform in India is hugely affected by China's example.

In April 2003, for only the second time in history, an Indian minister of defense paid an official visit to China. In 1998, at the time of India's test of a nuclear device, India's Defense Minister George Fernandes called China India's "potential threat number one," a greater threat than Pakistan. Fernandes' visit to China in 2003 was symbolic of how far Sino-Indian relations had come, although he carried with him a long agenda of concerns to raise with Chinese leaders, including China's ballistic missile assistance with Pakistan, military assistance to the Myanmar regime, and problems along the disputed Sino-Indian border.[29]

Following the Fernandes visit, the first bilateral military exercise between China and India took place in November 2003, a joint naval search-and-rescue exercise off the coast of Shanghai. Such confidence-building measures are expected to continue, but the Indian national security leadership's fundamental perception that China poses a long-term strategic threat is unlikely to change.

China has in recent years emphasized its intent to pursue a balanced foreign policy toward India and Pakistan, a change from the past policy that was markedly in Pakistan's favor. This shift is likely a result of India's growing significance as an economic and

military power in Asia. Other issues, however, are increasingly affecting China's relations with Pakistan. Revelations of Pakistan's transfer of nuclear technology to North Korea have placed China in a difficult position vis-à-vis the international community and North Korea.[30]

Outreach to Central Asia and Russia

China has continued to build its relations with the republics of Central Asia over the past two years, both bilaterally and through the Shanghai Cooperation Organization (SCO).[31]

Over the past two years, trade between China and the Central Asian republics and Russia has continued to grow steadily, from a relatively low base, and energy and transport projects linking China with Kazakhstan, in particular, continue to be developed. The SCO is becoming more active as a forum for regional economic relations. SCO members signed a framework agreement for economic cooperation in September 2003. In January 2004, the SCO established a formal secretariat in Beijing, headed by a former PRC vice minister of foreign affairs.

China's focus on security cooperation in Central Asia serves its goals of stabilizing its frontiers, countering international and domestic terrorism, and increasing political leverage in an area of the world that hosts a significant U.S. military presence. Even as the Central Asian republics and Russia are concerned about growing Chinese economic influence in their sparsely populated regions, they also hope transborder trade will stimulate local economies.

In the wake of the September 11 terrorist attacks, and as Operation Enduring Freedom was unfolding, the Chinese People's Liberation Army held its first peacetime military exercise with a foreign nation in October 2002, with the Republic of Kyrgyzstan, for the purpose of training border forces to deal with a possible terrorist-backed insurgency. Within the framework of the SCO, counterterror military forces from China and four other SCO members (Kazakhstan, Kyrgyzstan, Russia, and Tajikistan) engaged in a larger, two-phase exercise that took place in eastern Kazakhstan and western Xinjiang in mid-August 2003.[32]

Hong Kong and China: Economic Partnership and Political Friction

As the 2004 Hong Kong Policy Act report notes: "U.S. interests in Hong Kong remain substantial. U.S. trade, investment, and business with Hong Kong, the world's 11th largest trading entity and 13th largest banking center, flourish in a largely open environment. In 2003, U.S. exports to Hong Kong totaled USD 13.5 billion, making Hong Kong our 14th largest overseas export market. U.S. direct investment in Hong Kong through 2002 amounted to over USD 35.8 billion. Over 1,000 resident American firms operate in Hong Kong, and Hong Kong is home to an estimated 50,000 American citizens."[33]

In the past year, the Hong Kong Special Administrative Region (SAR) has experienced economic recovery tied to growth in its two largest markets, China and the United States, but its political relationship with China under the "one country, two systems" rubric has become tense. On July 1, 2003, five hundred thousand Hong

Kong people marched in protest of the SAR government's ill-advised introduction of a flawed security bill that was seen as going beyond what was required to implement the Hong Kong Basic Law's requirement, in article 23, to pass laws against such crimes as subversion, sedition, and secession. The SAR government withdrew its bill in the face of these protests and the loss of support from the probusiness Liberal Party members of the Legislative Council.

By the summer of 2003, Chinese leaders viewed these developments with growing concern. One response was to accelerate and finalize negotiations on China's first-ever FTA—the Closer Economic Partnership Arrangement (CEPA) with Hong Kong—as a means of showing China's concern for Hong Kong's economic welfare. CEPA, in effect since January 1, 2004, gives Hong Kong-origin goods and services special access to the Chinese market in advance of WTO liberalization timetables and, in some cases exceeding the benefits of China's WTO accession agreement. Billed as a WTO-consistent FTA, the CEPA does not discriminate on the basis of nationality; foreign, including U.S., firms duly established in Hong Kong are eligible to register as Hong Kong service providers. The CEPA has the potential, not yet realized, of making Hong Kong a more attractive place for certain types of manufacturing and for international service companies.[34]

Despite the PRC's bestowal of CEPA, following the events of July, many Hong Kong people renewed calls for direct elections, seen as offering the best guarantee of a responsive government that would preserve individual rights and protections, such as those the draft security legislation had seemed bound to erode.

The Hong Kong Basic Law provides that the direct election by universal suffrage of the chief executive and all of the Legislative Council should be the ultimate aim. Direct election could be adopted as the method used to select the chief executive as early as 2007 and to form all of the legislature in 2008.[35] The Basic Law requires a two-thirds majority vote by the Legislative Council, approval by the chief executive, and approval of or notification to, in the case of Legislative Council rules the National People's Congress Standing Committee (NPCSC) for any change in the method of selecting the chief executive or forming the Legislative Council.[36] Hong Kong proponents of an early adoption of direct elections have called for direct consultations with the Special Administrative Government on this matter, but the chief executive, C.H. Tung, has declined to do so. Instead, he set up in January 2004 a Task Force on Constitutional Development that has collected views of the public and forwarded them to the NPCSC.

On April 6, 2004, the NPCSC, on its own initiative, issued an interpretation of the Basic Law asserting that only the NPCSC would decide, upon receiving a report from the Hong Kong chief executive, whether any change in electoral processes was needed. It further confirmed that the Legislative Council would not have the right to initiate bills in Hong Kong to establish in local law any new electoral procedures or methods of voting on legislation. Following receipt of a report from Chief Executive Tung recommending a change in electoral procedures, on April 26, 2004, the NPCSC

promptly issued a ruling that in 2007 and 2008, no changes would be made.

This string of decisions has been met with dismay by Hong Kong advocates of greater democracy.[37] Beijing set an ominous precedent by preemptively intruding on governance issues that could easily have been considered within the competency of the Hong Kong SAR. By ruling as it did, the NPCSC shut out the Legislative Council from the early stage of deciding whether changes in electoral rules are necessary as well as the later implementation phase should any change be approved in principle by the NPCSC. This move ensured total control of the process by Beijing. China's foreign ministry has brushed away critical comments on the NPCSC action, including statements by the U.K. and U.S. governments. China insists that the National People's Congress has the ultimate authority to interpret the Basic Law, a national law of the PRC, and that the matter is completely an internal one.

Emphasizing the point, Beijing's representative in Hong Kong declared in early May that "any move by Legislative Councilors in Hong Kong to advance motions to voice discontent or condemn the April 26 decision is against the law. . . . [It] cannot be questioned or challenged."[38] This shutting off of debate coincided with a visit to Hong Kong by eight PLA Navy warships—the largest Chinese flotilla sent to Hong Kong since the 1997 handover. Combined with Beijing's campaign to discredit democratic activists as unpatriotic, these moves constitute a clear campaign of intimidation.

Questions are consequently being raised in Hong Kong and elsewhere about whether Beijing's actions have undermined the high degree of autonomy envisioned under the Sino-British Joint Declaration of 1984 and the Hong Kong Basic Law and the principle of "one country, two systems." As a matter of U.S. policy, the question could well arise whether the provisions of section 202 of the U.S. Hong Kong Policy Act should be invoked: ". . . whenever the President determines that Hong Kong is not sufficiently autonomous to justify treatment under a particular law of the United States, or any provision thereof, different from that accorded the People's Republic of China, the President may issue an Executive Order suspending the certification of section 201 (a) [regarding continued separate application of U.S. laws with respect to Hong Kong]."[39]

It remains to be seen whether the PRC government will try to erode further Hong Kong's autonomy, such as by intervening in the question of article 23 (security) legislation, and to what degree the Hong Kong populace resists. Additional poorly judged moves by Beijing could have the effect of damaging Hong Kong's business environment, and U.S. long-term interest in an open and prosperous Hong Kong could well suffer. The bond rating agency Moody's, in a May 2004 report, cited doubts over whether Beijing will support democracy in Hong Kong even in future years as a reason the agency might downgrade Hong Kong's credit rating to be on a par with China's lower rating.[40] Aside from direct economic and trade interests in Hong Kong, the United States has an inherent interest in the protection of individual rights and the development of democracy in Hong Kong and also seeks Hong Kong's support in the global fight against terrorism, maintains a cooperative inter-

national law enforcement relationship, and continues to obtain access to Hong Kong as a port of call for U.S. ships and aircraft.

Cross-Strait Relations: Economic Ties Grow, Political Tensions Rise

Since China and Taiwan's respective entries into the WTO, cross-Strait economic integration has accelerated despite the lack of direct transport links. An estimated sixty thousand Taiwan-owned firms operate on the mainland, with a total stock of FDI estimated between $70 billion and $100 billion. In 2003, China was the destination for more than half of the island's total overseas investment, $7.7 billion. Meanwhile, Taiwan's total inward FDI declined to $3.58 billion in 2003 from $7.61 billion in 2000. Nearly seven thousand factories were shut down in Taiwan in 2003, more than double the 2002 figure.[41]

Although exact numbers are difficult to calculate due to the role of intermediate channels, Taiwan has probably provided the greatest single stream of FDI into China during the past decade. The progressive migration of industries (including most segments of its vital information technology industry) out of Taiwan to coastal China is seen as contributing to historically high unemployment in Taiwan which reached 5.2 percent in August 2003, though dropping to 4.3 percent in April, 2004. Even as investment flows from Taiwan to the mainland continued at high levels, gross domestic investment on Taiwan hit a four-year low of $48.2 billion in 2002.[42] It recovered slightly in 2003, to about $48.6 billion. These numbers contribute to a widespread impression that Taiwan business is not reinvesting on the island, preferring mainland alternatives.

Taiwan and PRC government statistics on cross-Strait trade differ. Transshipments of goods via Hong Kong, underreporting in Taiwan, and overreporting in the mainland are probably the reasons for this. Nonetheless, sides' numbers show China has become Taiwan's top trading partner in 2003. The PRC claims two-way trade reached more than $58 billion in 2003,[43] whereas the Taiwan Board of Foreign Trade announced March 1 that total cross-Strait trade was $46.3 billion, with Taiwan enjoying a $24.4 billion surplus on exports of $35.4 billion.[44] China has become Taiwan's largest export market, surpassing the United States in 2002 and 2003.

Taiwan's exports to the mainland increased by twenty percent in 2003. They accounted for 34.51 percent of Taiwan's total exports, up from 23.97 percent in 2000, according to Taiwan's economic ministry. Professor Peter Chow of the City University of New York refers to this state of affairs as Taiwan's asymmetric trade dependence on China's market, as China's exports to Taiwan in recent years have amounted to only about two to three percent of the PRC's total exports.[45]

In the information technology sector, Taiwan semiconductor and electronics manufacturing firms are major global actors, and their expansion into China continues, but without noticeable erosion of Taiwan equity control. In testimony before the Commission, Merritt Cooke, former senior commercial officer at the American Institute in Taiwan, attributed this to the relative stability of "highly differentiated, high-value supply chains" as opposed to the "instability of far simpler manufacturer-retailer networks characteristic

of commodity products." Cooke believes this distinction helps explain the historical pattern of Taiwan investment into the mainland. While many light industry sectors that Taiwan moved to the mainland in the 1980s and 1990s "have been swallowed up by mainland competitors," highly differentiated, relatively high-value consumer products such as brand-name athletic shoes and high-performance bicycles have remained largely in Taiwan equity hands. "If these product sectors, with their relatively lower levels of technology and slower product cycles, could stay in Taiwan control for decades, there is every reason to believe that the various IT [information technology] hardware sectors will stay even more firmly in Taiwan's grip in years ahead," Cooke said.[46]

Despite the large and growing Taiwan business presence in the mainland and burgeoning indirect cross-Strait trade and investment, there is a sense in the Taipei business community that Taiwan itself—as a venue for investment, manufacturing, logistics, or finance—is in danger of becoming marginalized within Asia. Kaohsiung's container port—once the fourth busiest in the world—now ranks sixth, with the Chinese ports of Shenzhen and Shanghai jumping ahead. The American Chamber of Commerce in Taiwan reports that a number of U.S. corporations' regional headquarters in Taiwan have been eliminated or downgraded to local offices.[47]

PRC's Campaign to Isolate Taiwan

The growing sense of marginalization is intensified by the PRC's determination to exclude Taiwan from multilateral forums and the work of international organizations. Beijing's initial move to block visits by World Health Organization officials to Taiwan in the spring of 2003, during the height of the SARS (severe acute respiratory syndrome) crisis, was an extreme example of this, but repeated in large and small ways around the world. China has fought over Taiwan government nomenclature submitted in WTO technical documents.[48] Beijing is widely believed to have used its political and economic leverage to dissuade other countries in the region from entering into FTA negotiations with Taiwan. Taiwan's first and so far only FTA was signed in August 2003 with Panama, one of the twenty-six countries that extend diplomatic recognition to Taiwan; Panama ranks seventieth among Taiwan's trading partners. Taiwan traders and business people are concerned that China is using its ASEAN FTA and Hong Kong CEPA initiatives to encroach further on Taiwan's economic and commercial space.[49]

In talks with Taiwan and U.S. business executives in March, Commissioners heard suggestions that the United States should consider reviving the process of negotiations on a U.S.-Taiwan Free Trade Agreement (FTA), if only to signal to others in the region that the United States is interested in helping Taiwan break out of its growing economic isolation. The United States has suspended bilateral trade negotiations pending substantial progress by Taiwan on a number of existing trade barriers to U.S. producers—including in the area of intellectual property protection, pharmaceuticals, telecommunications services, and agricultural products. Taiwan reportedly is making some progress in meeting U.S. concerns in some of these areas.

The other major factor behind the sense of marginalization is the loss of momentum to establish direct trade, transport, and communications links (the "Three Links") across the Taiwan Strait. As China becomes more central to Asia's regional economy and global supply chains, the lack of direct links across the Strait constrains Taiwan from taking advantage of its geographical proximity to the fastest-growing large economy in the world. In years past, Taiwan management skills and technology were highly prized by developing mainland coastal regions, and China took the initiative to foster the idea of early agreement on the Three Links. It is not evident that China has the same incentives to promote direct links, even as it senses a heightened interest in them within the Taiwan business community.

For more than six years, there has been little public dialogue on the Three Links, or on any other matter, between the two sides of the Strait. Taiwan President Chen Shui-bian's unilateral initiative to establish the "mini-Three Links" between Taiwan's small offshore islands of Kinmen and Matsu and neighboring mainland ports has not led to more than local exchanges of visitors and goods. During Chen's first term, China initially refrained from moving any distance toward Chen's position on dialogue. Beijing insisted that any talks even on technical subjects like maritime trade, could be conducted only after Chen's government accepted the PRC's "one China principle" that there is only one China in the world and that Taiwan is a part of China. Chen refused to accept preconditions, and the one China principle goes against his own policy statements that, while the possibility of a future one China exists in theory, one China does not exist now, and that Taiwan, as the Republic of China, is an independent sovereign state separate from the PRC.

China has more recently suggested it would be willing to sponsor unofficial talks on technical issues, but Chen, citing legal strictures against nonofficials negotiating on behalf of the government, has been unwilling to countenance a Taiwan delegation that was not led by responsible officials of his government.

Taiwan Election: Identity Politics Wins, Cross-Strait Tension Rises

The dramatic March 20, 2004, presidential election in Taiwan—with the election eve shooting of Taiwan President Chen and Vice President Lu, the extremely narrow margin of Chen Shui-bian's election victory, and the postelection lawsuits and contentions raised by the opposition "Pan-Blue" KMT–PFP alliance—has frozen the cross-Strait situation for now. It is clear from public statements of President Chen and his advisors that he would like to make improvement of cross-Strait relations a high priority for his second and last term in office, with a focus on establishing a framework of peace and stability that would lead to negotiations on both political relations and practical matters such as the Three Links.[50] Yet such statements are negated, in the mind of Beijing leaders, by Chen's expression of pride that his narrow victory is a vindication of identity politics in Taiwan and is a mandate for solidifying Taiwan's separate status.

Following the election, President Chen's repeated public references to Taiwan as an independent, sovereign country and his promise to initiate constitutional reforms or amendments in the 2006–08 time frame give no comfort to leaders in Beijing, who suspect that Chen is determined to formalize Taiwan's independence. A senior PRC Taiwan Affairs Office spokesman publicly condemned Chen as stubbornly insisting on a Taiwan independence separatist stance and further claimed Chen's "actions have ruined Taiwan society, damaged cross-Strait relations, and posed a direct threat to peace and stability in the Asia-Pacific region." [51]

Chen and his government will be walking a tightrope as they seek to solidify the Taiwan people's freedoms and democracy, maintain adequate defenses against PRC coercion, and revive cross-Strait dialogue while preserving good relations with Taiwan's strongest supporter, the United States. Chen's May 20, 2004, inaugural address will be a guide to his second-term, cross-Strait policies and will be read meticulously by all concerned in Beijing and Washington.

Changing Cross-Strait Realities; U.S. Policy

The cross-Strait situation of the past six months has been characterized by crisis management. Beijing issued official denunciations of Taiwan's passage of a referendum law in November 2003 and of Taiwan President Chen Shui-bian's plan to put forward referendum questions to be voted on during the March 20, 2004, presidential election. PLA military exercises on the China coast opposite Taiwan and the April 2004, arrest of Major General Liu Guangzhi, the former head of the PLA Air Force Command College, for spying for Taiwan added to a potentially dangerous string of events that cumulatively could have sparked military conflict.

The response of the United States to these events shows how convoluted U.S. cross-Strait policy has become since the framework was established twenty-five years ago. This was evident during President Bush's meeting in Washington with PRC Premier Wen Jiabao on December 9, 2003, at a time when it was perceived that Chen Shui-bian was considering posing referendum questions that would relate to Taiwan independence or unification with the mainland. Speaking to the press, President Bush said, "The United States Government's policy is one China, based upon the three communiqués and the Taiwan Relations Act. We oppose any unilateral decision by either China or Taiwan to change the status quo." The president reportedly reaffirmed in private to Premier Wen his administration's firm opposition to the use of force against Taiwan, but he told the press that "the comments and actions made by the leader of Taiwan indicate that he may be willing to change the status quo, which we oppose." [52]

The referendum questions that finally were posed to Taiwan voters in March 2004—on the need for spending on missile defenses and for initiating government to government talks with the PRC—did not touch on the question of Taiwan's status. In any event, they did not obtain the necessary majority of registered voter participation in order to pass. Nonetheless, President Chen's proposal for constitutional revision—most likely through a referendum to take place in 2006—is likely to be met by additional PRC pressure to

pull Taiwan back from steps that Beijing believes could lead to Taiwan's permanent separation. Chen has insisted his constitutional proposals—not yet fully formed—will be designed to improve the functioning of Taiwan's government and not to change the status quo.[53]

The United States has a continuing interest in peace and security in the Taiwan Strait and encourages cross-Strait dialogue. Since President Bush's December 9, 2003, remarks, senior U.S. officials have continued to urge both sides not to take unilateral measures to change the status quo as defined by the United States. For example, in recent testimony before the House International Relations Committee, Assistant Secretary of State James Kelly made clear that "[T]he U.S. does not support independence for Taiwan or unilateral moves that would change the status quo as we define it."[54]

The United States' one China policy—which is based principally on the three Sino-U.S. communiqués and the Taiwan Relations Act—is challenged by recent developments across the Taiwan Strait. Taiwan's evolution into a viable, constitutionally based democracy, with the full panoply of democratic practices and institutions, including heavy participation in elections, is in stark contrast to the continuation of an authoritarian, one-party state on the mainland. Beijing continues to assert that Taiwan must be united with the mainland, and although it professes it prefers unification be obtained peacefully, Beijing has never ruled out the use of force to compel Taiwan. The PRC poses an increasing military threat to Taiwan through its missile deployments and military modernization program, which are clearly shaped both to apply coercive force and to fit a future Taiwan conflict scenario. See Chapter 8 for detailed findings on China's military modernization and the cross-Strait military balance.

In view of U.S. commitments under the 1979 Taiwan Relations Act (TRA) to provide Taiwan with the wherewithal to defend itself and to view with grave concern any attempt to resolve the Taiwan issue by coercion or military force, the United States cannot presume that the currently frozen cross-Strait situation serves long-term U.S. national interests. China's growing military power and its increased economic and political clout in the region have altered the cross-Strait strategic balance. Taiwan's politics have also changed the picture, as the results of the presidential election have, in the mind of the Democratic Progressive Party leadership, vindicated Chen Shui-bian's emphasis on Taiwan sovereignty and separate identity. The fact remains that the PRC does not exercise any operational, political, or economic jurisdiction or sovereignty over Taiwan. On the other hand, the United States does not recognize any de jure independent political sovereignty on the part of Taiwan but is committed under the TRA to resist any attempt by the PRC to incorporate Taiwan into its political orbit by force or to compel a change to its economic and social systems.[55]

The United States should consider new approaches to help China accept the realities of the present situation and work to loosen the strictures China has placed on Taiwan internationally while facilitating some form of cross-Strait dialogue that could lead to direct links between Taiwan and the mainland. The hope would be that

once such a dialogue was established, particularly in view of the extensive economic ties between the two sides, it could lead to broader confidence-building measures.

RECOMMENDATIONS

Regional Engagement

- The Commission recommends that Congress revitalize U.S. engagement with China's Asian neighbors by encouraging U.S. diplomatic efforts to identify and pursue initiatives to demonstrate the United States' firm commitment to facilitating the economic and security needs of the region. These initiatives should have a regional focus and complement bilateral efforts. The Asia-Pacific Economic Cooperation forum (APEC) offers a ready mechanism for pursuit of such initiatives. The United States should consider further avenues of cooperation by associating with regional forums of which it is not a member.

Hong Kong

- The Commission recommends that Congress consult with the administration to assess jointly whether the PRC's recent interventions impacting Hong Kong's autonomy constitute grounds for invoking the terms of the U.S.-Hong Kong Policy Act with regard to Hong Kong's separate treatment. This includes U.S. bilateral relations with Hong Kong in areas such as air services, customs treatment, immigration quotas, visa issuance, and export controls. In this context, Congress should assess the implications of the National People's Congress Standing Committee's intrusive interventions with regard to matters of universal suffrage and direct elections. Congress and the administration should continue to keep Hong Kong issues on the U.S.-PRC bilateral agenda and work closely with the United Kingdom on Hong Kong issues.

Cross-Strait Issues

- The Commission recommends that Congress enhance its oversight role in the implementation of the Taiwan Relations Act. Executive branch officials should be invited to consult on intentions and report on actions taken to implement the TRA through the regular committee hearing process of the Congress, thereby allowing for appropriate public debate on these important matters. This should include, at a minimum, an annual report on Taiwan's request for any military equipment and technology and a review of U.S.-Taiwan policy in light of the growing importance of this issue in U.S.-China relations.
- The Commission recommends that the Congress and the administration conduct a fresh assessment of the one China policy, given the changing realities in China and Taiwan. This should include a review of:
  - The policy's successes, failures, and continued viability;
  - Whether changes may be needed in the way the U.S. government coordinates its defense assistance to Taiwan, including the need for an enhanced operating relationship between U.S. and Taiwan defense officials and the establishment of a U.S.-Taiwan hotline for dealing with crisis situations;

- How U.S. policy can better support Taiwan's breaking out of the international economic isolation that the PRC seeks to impose on it and whether this issue should be higher on the agenda in U.S.-China relations. Economic and trade policy measures that could help ameliorate Taiwan's marginalization in the Asian regional economy should also be reviewed. These should include enhanced U.S.-Taiwan bilateral trade arrangements that would include protections for labor rights, the environment, and other important U.S. interests.

- To support this policy review, the Commission recommends that the appropriate committees of Congress request that the executive branch make available to them a comprehensive catalogue and copies of all the principal formal understandings and other communications between the United States and both China and Taiwan as well as other key historical documents clarifying U.S. policy toward Taiwan.
- The Commission recommends that Congress consult with the administration on developing appropriate ways for the United States to facilitate actively cross-Strait dialogue that could promote the long-term, peaceful resolution of differences between the two sides and could lead to direct trade and transport links and/or other cross-Strait confidence-building measures. The administration should be directed to report to Congress on the status of cross-Strait dialogue, the current obstacles to such dialogue, and, if appropriate, efforts that the United States could undertake to promote such a dialogue.

ENDNOTES

1. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impacts and Implications*, testimony of Bates Gill, December 4, 2003, p. 5.
2. China's joining the Asian "Shift Toward Regionalism" is outlined in the written testimony of Richard Feinberg and Stephen Haggard for the U.S.-China Economic and Security Review Commission, *Hearing on China as an Emerging Regional and Technology Power: Implications for U.S. Economic and Security Interests*, February 12–13, 2004, pp. 64–70.
3. Michael Vatikiotis and Murray Heibert, "How China is Building an Empire," *Far Eastern Economic Review* (November 20, 2003). See also Phillip P. Pan, "China's Improving Image Challenges U.S. in Asia," *Washington Post*, November 15, 2003.
4. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impacts and Implications*, testimony of John J. Tkacik, December 4, 2003, p. 15.
5. Top Asian sources of FDI to China, 2001: Hong Kong, 36.0 percent; Japan, 9.8 percent; Taiwan, 6.7 percent; Singapore, 4.6 percent; South Korea, 4.2 percent. A significant portion of Hong Kong investment and most of the 10.8 percent of FDI listed as sourced from the Virgin Islands is probably attributable to Taiwan. Source: Ministry of Foreign Trade and Economic Cooperation and U.S.-China Business Council, as cited in Allen Lenz, "World Trade and Investment: An Overview" (report prepared for the U.S.-China Economic and Security Review Commission [Washington, DC: October 2003]).
6. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impacts and Implications*, testimony of Wing Thye Woo, December 4, 2003, p. 25.
7. U.S.-China Security Review Commission, *Report to Congress: The National Security Implications of the Economic Relationship between the United States and China* (Washington, DC: July 2002), p. 37.
8. *Country Fact Sheet: China*, (Geneva, Switzerland: UN Conference on Trade and Development.) Available at www.unctad.org/wir.

9. U.S.-China Economic and Security Review Commission, *Hearing on China's Industrial, Investment, and Exchange Rate Policies: Impact on the U.S.*, testimonies of Peter Nolan and Edward Steinfeld, September 25, 2003, pp. 98–144.

10. See figure 4.1, *Leading Exporters and Importers in World Merchandise Trade, 2002 & 2003*, World Trade Organization. Available at www.wto.org/english/news_e/pr373_e.htm.

11. "China Doubles its Trade Deficit with South Korea," *Asia Pulse/Yonhap*, April 2, 2004.

12. "China-ASEAN Trade Records New High," *Xinhuanet*, February 8, 2004. Available at news.xinhuanet.com/english/2004-02/08.

13. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Edward Lincoln, December 4, 2003, pp. 82–88.

14. Commission discussions with Japanese business representatives in Tokyo, March 2004.

15. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Gordon Flake, December 4, 2003, p. 98.

16. The preceding paragraph draws heavily on Scott Snyder, "No Shows, Economic Growth, and People Problems," *Comparative Connections*, ejournal of CSIS Pacific Forum, 4th quarter, 2003. Available at www.csis.org/pacfor/cc/0304Qchina_skorea.html.

17. See, for example, U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Wing Thye Woo and Naoko Munakata, December 4, 2003, pp. 16–35 and pp. 104–127.

18. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Wing Thye Woo, December 4, 2003, pp. 23–24; see also Yongzheng Yang, "China's Integration into the World Economy: Implications for Developing Countries," *International Monetary Fund Working Paper*, *WP/03/245* (Washington, DC: IMF, December 2003).

19. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Naoko Munakata, December 4, 2003.

20. Bruce Klingner, "'Peaceful Rising' Seeks to Allay 'China Threat,'" *Asia Times Online*, March 12, 2004.

21. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Bates Gill, December 4, 2003, pp. 5–6.

22. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Naoko Munakata, December 4, 2003, p. 112.

23. Blas F. Ople, "Horizons," *The Manila Bulletin*, November 6, 2002.

24. Phillip P. Pan, "China's Improving Image Challenges U.S. in Asia," *Washington Post*, November 15, 2003.

25. Ibid.

26. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, testimony of Wang Gungwu, December 4, 2003.

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28. "Conflict With China Not Inevitable, says India," *Agence France Presse*, January 28, 2003.

29. "Fernandes Leaves for China," *Hindu*, Chennai, India, April 20, 2003; see also Ramananda Sengupta, "China-India: A Cautious Handshake," rediff.com, April 21, 2003.

30. U.S.-China Economic and Security Review Commission, *Hearing on China's Growth as a Regional Economic Power: Impact and Implications for the U.S.*, written testimony of Rollie Lal, December 4, 2003, p. 170.

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32. Bates Gill and Matthew Oresman, *China's New Journey to the West: China's Emergence in Central Asia and Implications for U.S. Interests* (Washington, DC: Center for Strategic and International Studies, August 2003).

33. *U.S.-Hong Kong Policy Act Report* (Washington, DC: U.S. Department of State, April 1, 2004).

34. Commission discussions with Hong Kong economic and trade officials, March 15, 2004.

35. In 2004, one-half of the Legislative Council (thirty out of sixty seats) will be elected directly by geographic constituencies; the other half indirectly, by professional, business, labor, and other "functional constituencies."

36. See annex I, section 7, and annex II, section III, *The Basic Law of the Hong Kong Special Administrative Region of the People's Republic of China* (Hong Kong: Government Printer, January 1996).

37. See, for example, "Hong Kong Leader Calls for Calm After China Rules Out Full Democracy," *Agence France Presse*, April 26, 2004; see also Yash Ghai, "Interpreting the Basic Law is Not What it Seems," *Apple Daily*, April 26, 2004, available at www.clearharmony.net; Jonathan Watts , "Hong Kong Democrats Angered by Beijing's Interference in Reform," *Guardian*, April 7, 2004; and Michael Ng, "No One Can Stop Beijing," *The Standard*, Hong Kong, April 5, 2004.

38. "Threatening Hong Kong," *Washington Times*, May 11, 2004.

39. See 22 U.S.C. 66, U.S.-Hong Kong Policy Act of 1992.

40. "Throttling the Golden Goose," *Asian Wall Street Journal*, May 10, 2004.

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51. "Text of PRC's Taiwan Affairs Office News Conference on Taiwan Election," *Beijing CCTV-4* (in Mandarin), Foreign Broadcast Information Service, translated English text, ref. no. CPP20040414000027 Beijing CCTV-4 in Mandarin, April 14, 2004.

52. Quoted and further analyzed in Ralph Cossa, "Does Taiwan's Leader Know When to Stop?" *International Herald Tribune*, December 17, 2003.

53. "Chen Vows Constitutional Reform," *BBC News UK Edition*, found at http://news.bbc.co.uk/1/hi/world/asia-pacific/3581407.stm, March 30, 2004. In a March 22, 2003, interview with the BBC, quoted in this article, Chen said: "We want to put the new constitution to a direct referendum of the people to decide whether they want to accept the new constitution or not, and this new constitution will have no bearing on the issue of unification or independence, nor will it change the status quo."

54. See statement of James Kelly, assistant secretary of State, before the House International Relations Committee, April 21, 2004.

55. See especially section 2(b)(6) and section 3(c), Taiwan Relations Act of 1979, 22 U.S.C. 3301. Section 2(b)(6): "It is the policy of the United States—to maintain the capacity of the United States to resist any resort to force or other forms of coercion that would jeopardize the security, or the social or economic system, of the people on Taiwan." Section 3(c): "The President is directed to inform the Congress promptly of any threat to the security or the social or economic system of the people on Taiwan and the danger to the interests of the United States arising therefrom. . . ."

CHAPTER 5

CHINA'S PROLIFERATION PRACTICES AND THE CHALLENGE OF NORTH KOREA

"***PROLIFERATION PRACTICES.*** *The Commission shall analyze and assess the Chinese role in the proliferation of weapons of mass destruction and other weapons (including dual-use technologies) to terrorist-sponsoring states, and suggest possible steps which the United States might take, including economic sanctions, to encourage the Chinese to stop such practices.*" [P.L. 108–7, Division P, Sec. 2(c)(2)(A)]

KEY FINDINGS

- China's assistance to weapons of mass destruction (WMD)-related programs in countries of concern continues, despite repeated promises to end such activities and the repeated imposition of U.S. sanctions. The Chinese government and Chinese enterprises have assisted such states to develop their nuclear infrastructure, chemical weapons capabilities, and/or ballistic missile systems notwithstanding a consistent history of denials. Libya's decision to open up its WMD programs, and the revelations by Pakistan that A.Q. Khan supplied uranium enrichment technology to Libya, Iran, and North Korea, provides new insight into China's legacy of proliferation. China's continued failure to adequately curb its proliferation practices poses significant national security concerns to the United States.
- The dangers posed by the North Korean nuclear weapons program are of grave concern for regional security, and global nonproliferation policies and actions and are exacerbated by a lack of real progress in the Six Party Talks. The extent of Chinese cooperation in those negotiations to achieve a complete, verifiable, and irreversible dismantlement of North Korea's nuclear weapons programs is a critical test of the U.S.-China relationship. Nevertheless, the closed nature of North Korea means intelligence assessments must be judged with caution. As U.S. intelligence estimates of North Korea's nuclear weapons capabilities increase, so too does the urgency for a resolution of the stalemate that has characterized those talks to date. Reports now indicate that North Korea may have reprocessed eight thousand spent fuel rods. This could provide enough plutonium to produce approximately nine weapons in addition to the one to two weapons the North already is believed to possess. China's efforts to convene the Six Party Talks are a commendable preliminary step, but Beijing does not appear to have used its substantial leverage to persuade North Korea to dismantle all elements of its nuclear weapons program.
- It appears that U.S. and Chinese goals for the Six Party Talks are not identical, given recent Chinese public statements that the

United States should modify its negotiating position. Furthermore, a fully developed strategy has not yet been developed for a reasonably staged process of steps, starting with a freeze of North Korea's nuclear programs and ending with irreversible dismantlement under an extensive verification regime. The Commission is concerned that the United States has not presented a detailed plan that puts pressure on North Korea to begin serious negotiations and that presses China to use its leverage on North Korea to negotiate and implement an agreement.

- China continues to permit North Korea to use its air, rail, and seaports to trans-ship ballistic missiles and WMD-related materials. North Korean officials recently stated they do not intend to curtail missile trade, as it provides badly needed foreign exchange. This is contrary to Beijing's stated position that it seeks to curtail this dangerous proliferation activity. China has not applied sufficient pressure on North Korea to stop these exports.
- The need for China's cooperation in resolving the North Korean nuclear crisis has been cited by commentators as a reason the United States has softened its position regarding other outstanding U.S.-China trade and economic disputes. The Commission believes that it is as much in China's national interests as it is in the U.S. national interest to achieve a nuclear-free Korean Peninsula without additional, nonrelated concessions or other inducements. Nevertheless, the expected benefits to the United States from China's cooperation in the Six Party Talks do not appear to have been forthcoming. North Korea's assertions that it is now moving forward with its weapons development programs, both qualitatively and quantitatively, should be taken seriously, with all the attendant risks for U.S. national security interests, regional stability, and global nonproliferation goals.

OVERVIEW

In its 2002 Report to Congress, the Commission stated that China's transfers of technology and components for WMD and their delivery systems to countries of concern, including certain designated terrorist-sponsoring nations, was helping to create a new tier of nations with the capability to produce weapons of mass destruction and ballistic missiles. Since that time, recent events unfortunately have confirmed this warning. Clearly, China is a key to stopping this proliferation.[1]

Chinese supplies of technology and components for weapons of mass destruction and their delivery systems to countries of proliferation concern continue to pose significant security issues for the United States. China's cooperation with Pakistan and Iran in nuclear and missile-related technologies; Beijing's continued economic support for North Korea and whether it will choose to exert its substantial economic leverage to help achieve a complete, verifiable, and irreversible dismantlement of North Korea's nuclear program; and whether China will effectively implement and enforce its export regulations to stem proliferation all remain grave security issues for the future of U.S.-China relations.

The Commission held a hearing on July 24, 2003, examining *China's Proliferation Practices and the Challenge of North Korea*. This hearing took place against the backdrop of a developing nuclear cri-

sis on the Korean Peninsula after North Korea admitted it secretly had resumed a nuclear weapons development program based on uranium enrichment. The Commissioners heard testimony from current and previous administration officials, as well as outside experts, on China's proliferation practices and its role as an intermediary in the Six Party Talks that are aimed at defusing the North Korean crisis.

ANALYSIS AND FINDINGS

Proliferation Is Ongoing

The all-too-real possibility that WMD will be acquired and used by terrorists is of the gravest concern for U.S. national security, unlike the Cold War era, when the prospect of mutual assured destruction between nuclear states made nuclear conflict ultimately unthinkable. The current era is characterized by concerns about transfers of WMD-related materials between states and nonstate actors. Today's challenge is to keep nuclear, chemical, and biological weapons out of the hands of terrorists and rogue nations that are willing to use any means to achieve their goals.

The consequence of more than twenty years of China's direct transfers, as well as associated re-transfers of WMD and related technologies, is that the United States now faces enhanced threats from rogue states or terrorist groups that can acquire WMD capabilities. Unfortunately, even in light of overwhelming evidence of the increased threat to global security, Chinese entities continue to proliferate. This activity calls into question the effectiveness of the U.S. government's pursuit of a partnership with Beijing in counterterrorism efforts or in resolving the crisis on the Korean Peninsula. Moreover, the extent to which U.S. actions to address economic and trade disputes with China may be deferred because of hoped for Chinese cooperation in achieving these U.S. security objectives is of concern. There is a risk in deferring such actions while the level of China's cooperation on counterterrorism and the North Korean crisis is an open question.

The history of Chinese proliferation behavior is one of broken promises during several decades. For years, China transferred ballistic and cruise missiles capable of acting as WMD delivery systems, missile technology, and missile-related components (especially dual-use items) to countries with troubling proliferation records such as Pakistan, Libya, Iran, and North Korea despite U.S. protests and the imposition of sanctions on numerous occasions.[2] Since 1992, the United States has expressed ongoing concern with regard to China's noncompliance with its nuclear commitments and its numerous pledges to the United States with respect to missile proliferation. The United States also believes that China retains undeclared chemical and biological weapons capability inconsistent with its Chemical Weapons Convention (CWC) and Biological Weapons Convention (BWC) obligations.

In contrast to the 1990s, Chinese transfers have evolved from sales of complete missile systems, to exports of largely dual-use nuclear, chemical, and missile components and technologies.[3] While this change represents a quantitative decrease, qualitatively these transfers are equally worrisome. The shift from complete systems to components and technologies continues to raise significant con-

cerns about the extent to which these exports are improving the WMD-related capabilities of recipient countries.[4] Recent activities "have aggravated trends that result in ambiguous technical aid, more indigenous capabilities, longer range missiles, and secondary (retransferred) proliferation."[5] Continuing intelligence reports indicate that Chinese cooperation with Pakistan and Iran remains an integral element of China's foreign policy.[6]

As recently as April 1, 2004, the United States imposed sanctions on five Chinese entities for exports to Iran of items that have the potential to make a material contribution to Iran's WMD or missile capabilities. Several entities such as China North Industries Corporation (NORINCO), a state defense industrial firm, and its subsidiaries, and China Precision Machinery Import/Export Corporation (CPMIEC) have been sanctioned multiple times. NORINCO and any successor, subunit, or subsidiary was sanctioned under the Iran Non-proliferation Act of 2000 twice in 2003 and again in 2004. CPMIEC or its parent, for example, was sanctioned in 1991, 1993, 2002, 2003, and 2004 for missile-related transfers to Iran and/or Pakistan. (See Appendix A for history of U.S. sanctions against the PRC.)

In the summer and fall of 2002, Beijing issued a comprehensive set of export control regulations and control lists. But, at the same time that China was providing its first national training course on the new, missile-related export regulations in February 2003, Chinese entities continued to work with Pakistan and Iran on ballistic missile-related projects, were primary suppliers of advanced conventional weapons to Pakistan and Iran, and provided dual-use chemical weapons-related production equipment and technology to Iran.[7] In testimony to the Senate Select Committee on Intelligence in February 2004, CIA Director George Tenet stated that "although Beijing has taken steps to improve ballistic missile related export controls, Chinese firms continue to be a leading source of relevant technology and continue to work with other countries on ballistic missile-related projects."[8] Reporting to Congress in mid-2003, the CIA stated that "firms in China provided dual-use missile-related items, raw materials, and/or assistance to . . . countries of proliferation concern such as Iran, Libya, and North Korea."[9]

One key issue for the United States is the ability to determine the true relationship of proliferating entities in China and the Chinese government, and the extent to which the Chinese government is aware of these transfers.[10] Some analysts argue that because China is such a large country, the Chinese government may be unaware of the activities of each Chinese entity involved in proliferation. However, the ability of serial proliferators such as NORINCO, which is a state-owned entity, to continue to operate, calls into question China's commitment to enforcing its export control laws. Beijing's failure to control such transfers gives the appearance that these are allowed in accordance with an unstated national policy.

China has generally tried to avoid making fundamental changes in its transfer policies by offering the United States carefully worded commitments[11] or exploiting differences between agreements. With respect to nuclear nonproliferation, China joined the Zangger Committee in 1997, which requires item-specific safeguards, but not the Nuclear Suppliers Group (NSG), which requires full-scope

safeguards. The NSG covers exports of dual-use items, a major difference between it and Zangger and covers not just equipment and material but also technology for the development, production, and use of listed items. Full-scope safeguards allow for International Atomic Energy Agency (IAEA) inspections and verification of declared nuclear facilities.

Recent news reports indicate that China has applied to join the forty-nation NSG and also is discussing entry into the multilateral Missile Technology Control Regime (MTCR).[12]

China's entry into the MTCR may, however, be met with mixed reaction. MTCR membership could mean greater cooperation in controlling missile proliferation or, alternatively, "membership in MTCR would exempt China from certain sanctions, provide it with intelligence, give it a potentially obstructionist role in decision-making, and relax missile related export controls to China." [13]

China is party to the CWC and the BWC, but not to the Australia Group.[14] China has exploited differences between the CWC and Australia Group control lists to export "chemicals and equipment of proliferation concern to countries such as Iran." [15] China's new export control regulations do contain a "catchall" provision that can be used to restrict the export of items not specifically identified on the control list. But, once again, enforcement will be the key test of Beijing's commitment to restrict its exports.

Transfers to Countries of Proliferation Concern

China-Pakistan Nuclear Weapons

Chinese assistance to Pakistan was essential to the development of Pakistan's missile and nuclear programs [16] (see Appendix B). Pakistan's recent admission that its chief nuclear scientist, A.Q. Khan, operated a nuclear arms market and supplied uranium enrichment technology to Libya, Iran, and North Korea confirms the worst—that a huge arsenal of nuclear materiel and technology is now widely diffused without controls. Detailed Chinese nuclear plans initially supplied to Pakistan have been uncovered in Libya, with more discoveries possible. With the Pakistani government's revelations, and Libya's agreement to dismantle its nuclear program, new evidence is surfacing that shows how black market arms purveyors transfer nuclear weapons hardware and technologies from country to country either with government sanction or through underground networks. Although Beijing pledged in 1996 that it would not provide assistance to unsafeguarded nuclear facilities, U.S. intelligence does not "rule out, however, some continued contacts subsequent to the pledge between Chinese entities and entities associated with Pakistan's nuclear weapons program." [17]

China currently is in the process of negotiating the sale of a large, $700 million nuclear reactor to Pakistan in Chasma. However, Pakistan has refused to open all of its facilities to full-scope IAEA inspections and is not a Nuclear Nonproliferation Treaty (NPT) signatory. Under NSG guidelines, no member is supposed to supply nuclear goods to declared non-nuclear weapon states unless the recipient is willing to open all of its nuclear facilities to full-scope IAEA inspections.[18] Arms control expert Henry Sokolski raises serious concerns about this sale to Pakistan and questions why it should be permitted, even though the agreement would be

grandfathered under the terms of China's accession to the NSG, asking:[19] "Is there any country less qualified financially or in need of buying such a reactor, more able to convert the reactor's fresh or spent fuel quickly into bomb material, or freer of legal constraints to proliferate?"[20]

Chinese entities have helped Pakistan to "move toward domestic serial production of solid-propellant SRBMs and supported Pakistan's development of solid-propellant MRBM's."[21] In the first half of 2003, the CIA reports that China also remained a primary supplier of advanced conventional weapons to Pakistan.[22]

China-Iran Missile and Nuclear Cooperation

China's continued assistance to Iran,[23] a designated state sponsor of terror, also is extremely troubling. U.S. intelligence reports that entities from China, Russia, and North Korea helped Iran become self-sufficient in ballistic missile production.[24] Iran produces Scud short-range ballistic missiles, is in the late stages of developing the Shahab medium-range ballistic missile, and is pursuing longer-range missiles."[25] Chinese entities continue to assist Iran with dual-use missile-related items, raw materials, and chemical weapons-related production equipment and technology as of the CIA's most recent unclassified reporting that covers the period from January through June of 2003.[26]

In October 1997, China agreed to end cooperation with Iran on supplying a uranium conversion facility, not to enter into any new nuclear cooperation with Iran, and to bring to conclusion within a reasonable period of time two existing projects.[27] But concerns remain within the intelligence community, as of the first half of 2003, that Chinese firms continued to cooperate with Iran in the nuclear field.[28]

According to news reports, "An Iranian opposition group found that Iranian front companies procured materials from China (and other countries) for secret nuclear weapons facilities."[29] It also was reported last year that in Iran "about fifty Chinese experts have been observed at a uranium mine at Saghand, and North Korean and Chinese experts supervised the installation of centrifuge equipment to enrich uranium near Isfahan."[30]

The United States is convinced that Iran is "pursuing a clandestine nuclear weapons program based on both enriched uranium and low burn up plutonium."[31] After enormous pressure from the international community and the IAEA, Iran has agreed to demands that its nuclear program be open for inspections and that it halt its uranium enrichment and reprocessing activities. The IAEA cited Russia, China, and Pakistan as "probable suppliers of the technology Iran used to enrich uranium."[32]

Energy Security

One potential explanation for China's history of proliferation to countries such as Iran, Iraq, and Libya, countries that have been on the State Department's list of terrorist sponsors is China's growing dependence on Middle East oil.[33]

China is a net importer of oil, and its need for foreign oil is expected to double by 2010. This need for energy security may help explain Beijing's history of assistance to terrorist-sponsoring states, with various forms of WMD-related items and technical assistance,

even in the face of U.S. sanctions. Such assistance to Iran appears to be ongoing.

Some research indicates that China's sales of arms-related material and technologies have not only been for hard currency but also for favorable oil concessions. Iran, for example, exported 12.4 million tons of crude oil to China in 2003.[34] The Zhuhai Zhenrong Corporation, a spin-off of NORINCO, a Chinese government-owned weapons producer and serial proliferator currently under sanction, has agreed to purchase $20 billion worth of liquefied natural gas from Iran over twenty-five years and is expected to complete deals to develop three Iranian oil fields.[35] Sinopec Group, China's state-owned petrochemical company, which already has an oil project in Iran, is holding talks with the Iranian government to purchase liquefied natural gas. Analysts say this would be an important coup for Iran in the face of U.S. economic sanctions.[36]

But, this pursuit of oil diplomacy may support objectives beyond just energy supply. Beijing's bilateral arrangements with oil-rich Middle Eastern states also helped create diplomatic and strategic alliances with countries that were hostile to the United States. For example, with U.S. interests precluded from entering Iran, China may hope to achieve a long-term competitive advantage relative to the United States. Over time, Beijing's relationship-building may counter U.S. power and enhance Beijing's ability to influence political and military outcomes. One of Beijing's stated goals is to reduce what it considers U.S. superpower dominance in favor of a multipolar global power structure in which China attains superpower status on par with the United States. See Chapter 6 for further analysis of China's energy needs and strategies.

China and North Korea

In October 2002, North Korea revealed that it secretly had resumed its nuclear weapons program. This was in violation of its commitments under the 1994 Agreed Framework, as well as the NPT, its IAEA safeguards agreement, and the Joint North-South Declaration on the Denuclearization of the Korean Peninsula. The North Korean government acknowledged to a U.S. delegation that it had a program to enrich uranium for nuclear weapons, which the North now denies, triggering the current crisis on the Korean Peninsula. In the late 1990s, the United States had evidence of the uranium enrichment program,[37] which now has been corroborated by Pakistan's A.Q. Khan, who began working with North Korea on uranium enrichment not long after the 1994 Agreed Framework was signed.

It is reported that around 1997, Pakistan's A.Q. Khan "made inroads with the government of Kim Jong Il, as it sought a way to make nuclear fuel away from the Yongbyon plant and the prying eyes of American satellites."[38] According to intelligence officials cited in the *New York Times*, Pakistan transferred to North Korea all of the equipment and technology it needed to produce uranium based nuclear weapons.[39]

In addition, CIA Director George J. Tenet stated that "[T]he Intelligence Community judged in the mid-1990's that North Korea had produced one, possibly two, nuclear weapons. The eight thousand rods the North claims to have processed into plutonium metal

would provide enough plutonium for several more."[40] Recent reports now indicate that North Korea may have reprocessed all eight thousand fuel rods and that it may have sufficient stocks for an additional eight or nine nuclear weapons.[41]

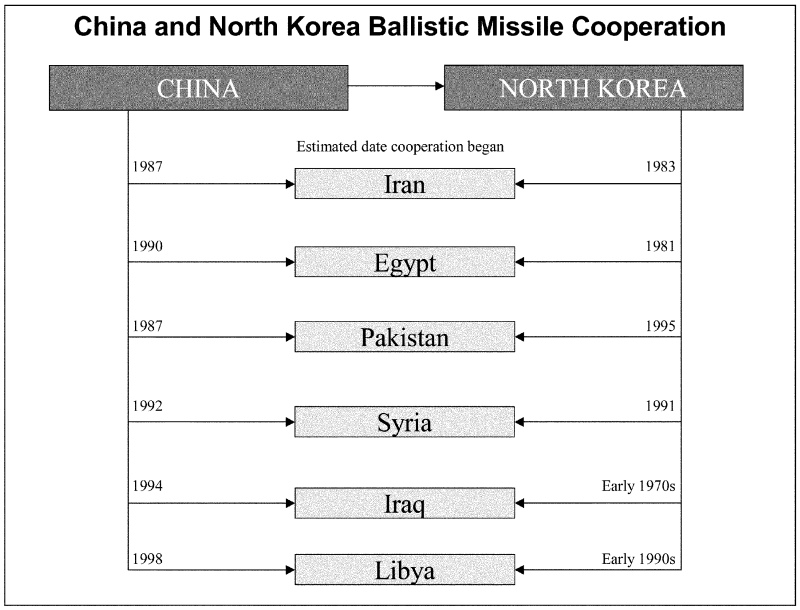
In June 2000, the Japanese newspaper *Sankei Shimbun* obtained a Chinese report on the North's uranium production program, which it said was secretly operating since 1989 at the Mt. Chonma Power Plant in North Phyongan Province. The information was provided by a North Korean military defector.[42]

Open to question is when Beijing learned of North Korea's nuclear weapons programs and how much it has known, given China's close cooperation with Pakistan's nuclear program and Pakistan's cooperation with North Korea. China has provided assistance to North Korea's missile program, its space program, and possibly its nuclear program, either directly or indirectly through Pakistan.[43] Since the 1990s, Chinese airspace, military airfields, and ports were used to transport WMD and related technologies between Pakistan, North Korea, and Iran.[44] According to the CIA, "[f]irms in China have provided dual-use missile-related items, raw materials, and/or assistance to . . . North Korea."[45]

Similarities also exist between Chinese and North Korean missiles. "China's CSS–3 booster stage rocket and the DPRK's [North Korea] Taepo Dong–1 (fired over Japan on 31 August 1998) used liquid hydrogen-nitrogen mixed fuel."[46] As reported in the spring 2001 issue of the *Journal of International Affairs*, the CIA also noted that following the U.S. bombing of the Chinese embassy in Belgrade, Chinese state-owned enterprises increased exports of high-technology components to North Korea.[47] According to the *Washington Times*, U.S. intelligence believes a Chinese chemical manufacturer in Dalian, which is a Chinese seaport near North Korea, shipped "tons" of tributyl phosphate (TBP), a dual-use chemical, to North Korea. U.S. intelligence believes the TBP was intended for the North's nuclear weapons program.[48]

Several North Korean government-trading firms are located in China. For example, the Korea Daesong Bank operates a branch called the Korea Daesong Trading Corporation which is located in Hong Kong.[49] The Zokwang trading company in Macau is part of the Korea Daesong Trading Corporation and handles exports of industrial products. U.S. intelligence has linked this company to North Korea's covert WMD program.[50] Moreover, in Shanghai are the Maebong Trading Co. and the Amur River National Development General Bureau.[51] In 1997, a former official of North Korea's Ministry of Foreign Affairs testified before Congress stating that the Maebong Trading Company was responsible for importing high-technology weapons such as missiles.[52]

Chinese and North Korean assistance to global ballistic missile proliferation is extensive. With respect to ballistic missiles, China and North Korea have been providers of ballistic missiles, cruise missiles, and their production facilities to Iran, Iraq, Syria, and Egypt. In fact, very few programs have not directly benefited from Chinese and/or North Korea assistance and, with the exception of Libya and Iraq, cooperation continues today. These interrelationships are highlighted below.



Source: See Appendix D for background information.

China's Role in the North Korea Crisis

From the onset of the current crisis, the United States has been seeking China's assistance in resolving the stand-off with North Korea. China exerts significant leverage over North Korea and is its largest trading partner. Moreover, a Treaty of Friendship, Cooperation and Mutual Assistance between China and North Korea dates back to 1961. Without Chinese assistance, it is difficult to imagine how the regime in the North could remain in power. China provides approximately ninety percent of North Korea's oil and forty percent of its food[53] (approximately $500 million in food and heavy oil)[54] and has consistently allocated twenty-five to thirty-three percent of its foreign assistance budget to North Korea since 1996.[55] It was reported that the oil pipeline between China and North Korea experienced "technical difficulties" and was shut down for three days in February 2003[56]—an event analysts say sent a powerful signal to Pyongyang and helped to persuade North Korea to join three-country talks in April 2003.[57] One estimate holds that the North Korean economy would be paralyzed within a period of six months should Chinese energy assistance be halted.[58] Another study estimates that Leader Kim Jong Il's regime would collapse within two years if international economic sanctions were imposed.[59]

Nonetheless, despite China's active role in the Six Party Talks, in which it is serving as the key intermediary with North Korea, to date it appears unwilling to use its leverage in a significant way. Notably, China has been opposed to sanctions and to discussing the North Korean nuclear issue in the United Nations.[60] If North Korea were to carry out nuclear tests publicly, China reportedly has indicated that it would not oppose a proposal to impose economic sanctions in the United Nations.[61] But thus far, China has

resisted attempts to put this issue before the United Nations, presumably in support of promises it made to Pyongyang.[62]

China's position in the "Six Party Talks is that it seeks elimination of North Korea's nuclear weapons program and that it agrees with the U.S. position that a complete, verifiable and irreversible dismantling of the North's nuclear capabilities is required. North Korea has indicated that it will dismantle its nuclear weapons program in return for economic aid and security guarantees. But, subsequent to the last round of Six Party talks in February 2004, Pyongyang's official news agency stated that allowing nuclear inspections and the dismantling of its nuclear weapons program would only lead to a U.S. invasion,"[63] not prevent it.

Beijing's desire to avoid regional instability and regime change in Pyongyang, its long-time ally and buffer state, may be inducing its active participation in the Six Party Talks. Regime change in North Korea, either through economic blockade or a military strike, could result in a democratic and reunified Korea, likely increasing American influence in Asia. On the other hand, Beijing's active role in facilitating talks fosters good relations with the United States, its most important trading partner, and enhances China's prestige. Further, China's participation may help to assuage the security fears of its neighbors, prevent a regional arms buildup, and preclude the United States from taking preemptive military action against the North or forcing imposition of an economic blockade.

But time is not on our side in confronting this crisis. As the Six Party Talks drag on, North Korea's nuclear weapons and ballistic missile programs keep moving apace. While we cannot be sure just how far North Korea has progressed, there seems to be a growing consensus that it already possesses significant capabilities in this regard and will advance considerably further within a matter of months. As these capabilities are attained, the prospects for achieving a complete, verifiable, and irreversible dismantlement by North Korea are dimming substantially. Such an outcome, while contrary to U.S. objectives, may on the other hand satisfy Beijing's strategic objectives—its desire to keep the North Korean regime in place while also being perceived to have worked cooperatively with the international community.

The key question is not only whether China will be willing to exert leverage in a meaningful way on North Korea, but also whether China is prepared to press the North Koreans to accept a robust and intrusive dismantlement verification regime, an essential component of a complete, verifiable, and irreversible dismantlement scenario. North Korea's failure to comply with the 1994 Agreed Framework underscores the absolute requirement for onsite inspections and verification. Given China's posture to date on the Proliferation Security Initiative (PSI), not to mention its own continuing proliferation problems, it is certainly a questionable proposition.

The Commission is concerned that the United States, with little benefit in return, may be offering unrelated trade concessions or other inducements to China for its cooperation in this crisis. The Commission believes that it is as much in China's national interests as it is in the U.S. national interest to achieve a nuclear-free Korean Peninsula and therefore that unrelated inducements for China's help should not be necessary.

The recent visit of Leader Kim Jong Il to meet with China's leaders, including President Hu and Central Military Commission Chairman Jiang Zemin, followed a visit by Vice President Cheney, during which Mr. Cheney presented Beijing with new evidence on North Korea's nuclear weapons program and reportedly warned that time is running out for ending the stalemate. President Hu is said to have advised Kim to soften his stance on North Korea's nuclear weapons program, after reassuring Kim that chances were slim that the United States would invade North Korea. Kim is also believed to have requested more aid.[64] On the heels of Kim's return to Pyongyang, North Korea's number two leader Kim Yong-nam told a U.S. policy expert visiting the North that "If Bush insists on his present policy of a complete, irreversible and verifiable dismantling first, we wouldn't be interested in having a deal with the United States. . . . We are going to use this time one hundred percent effectively to strengthen our nuclear deterrent, both quantitatively and qualitatively."[65]

Export Controls

In November 2000, the Chinese government pledged to the United States that it would not assist "in any way, any country in the development of ballistic missiles that can be used to deliver nuclear weapons" and that it would publish comprehensive, missile-related export controls. In return, the United States agreed to waive sanctions for Chinese assistance to Iranian and Pakistani missile programs. In August 2002, as part of this commitment, the Chinese government published a comprehensive export control list.[66]

It remains to be seen how China will progress in implementing its new regulations. According to a recent in-country assessment by the Monterey Institute of International Studies, the Chinese government has taken steps to strengthen its "export control infrastructure, increase communication among various branches and levels of government, offer training to local officials and exporters and improve the transparency of its system."[67] Problems, however, remain with respect to end-use verifications, the number of personnel dedicated to training, the ability of companies to skirt the law through falsified documentation, and a lack of information on the part of some exporters.[68] The Commission believes that the Chinese government has not made an adequate effort to monitor its companies, as evidenced by the cases of serial proliferators that are government entities or spin-offs of formerly state-owned enterprises.

The Monterey study points to the lack of public evidence that firms have been punished for illegal exports, in contrast to Chinese government claims that in fact violators have been punished discretely with fines, revocation of licenses, and other legal punishments.[69]

During April 2004 talks, the U.S.-China Joint Commission on Commerce and Trade, a government-to-government consultative forum, reached agreement on procedures to strengthen end-use visit cooperation and help ensure that U.S. exports of controlled dual-use items are being used by their intended recipients for their intended purposes.

How China implements its export control regime will be a key test of its commitment to cooperate with the United States to stem

proliferation. Implementation will depend on the Chinese government's foreign policy objectives which may override any interest in pursuing nonproliferation objectives: China's "strategic relationship with Pakistan, its desire to avoid instability or regime change in North Korea, or its desire to demonstrate its opposition to a unipolar world." [70]

The Proliferation Security Initiative

In May 2003, the United States launched the Proliferation Security Initiative to combat further spread of WMD. So far, the United Kingdom, Japan, Australia, Italy, France, Germany, Poland, Portugal, the Netherlands, Spain, and Liberia have agreed to support the initiative. Canada, Singapore, and Norway are also expected to provide support. The PSI is aimed at air, sea, and land interdiction of WMD and their delivery systems and related materials to state and nonstate actors of proliferation concern.

Although it is not a member of the PSI, China has been informed about the progress of the talks and has been invited to participate but has not agreed to do so. The chances of China agreeing to aggressive measures against the North Korean arms trade along the lines of the PSI appear unlikely. The Chinese foreign ministry on July 11, 2003, stated that China "does not approve of sanctions, blockages and other measures which are aimed at putting pressure on (North Korea). . . . Doing so will not only be useless to solve the problem, but will escalate antagonism and tension." [71] Further, China appears to be working through the United Nations to not only undermine the initiative but also to render it globally ineffective. This has been accomplished by getting the United States to drop a provision on the interdiction of foreign vessels carrying banned weapons on the high seas.[72]

Whether through a deterrent effect, or actual interdictions of WMD and missiles or their components, the PSI could put a serious dent in the North's ability to earn income from illicit exports to rogue states. In 2001, Pyongyang reportedly earned more than $560 million from missiles sales, and income from illegal drugs was between $500 million and $1 billion.[73] The North has stated that an economic embargo would be grounds for war. PSI interdictions, as contemplated, appear designed to fall short of enforcing an indiscriminate embargo on outbound North Korean maritime traffic, with the focus instead on WMD shipments. Whether such interdictions would be considered a less provocative measure than an embargo remains to be seen. President Bush has proposed that the PSI be expanded to include greater cooperation in law enforcement, such as through Interpol, "to bring to justice those who traffic in deadly weapons, to shut down their labs, to seize their materials, to freeze their assets." [74]

The Bush administration believes the PSI was an important factor in convincing Libya to end its nuclear program after American and British intelligence led to the interception of a German-owned ship bound for Libya with parts of sophisticated centrifuges. The administration hopes that North Korea will follow Libya's example and find that it would be to its own benefit to renounce its nuclear ambitions.

RECOMMENDATIONS

- Should the current stalemate in the Six Party Talks continue, the Commission recommends that Congress press the administration to work with its regional partners, intensify its diplomacy, and ascertain North Korean and Chinese intentions with a detailed and staged proposal beginning with a freeze of all North Korea's nuclear weapons programs, followed by a verifiable and irreversible dismantlement of those programs. Further work in this respect needs to be done to determine whether a true consensus on goals and process can be achieved with China. If this fails, the United States must confer with its regional partners to develop new options to resolve expeditiously the standoff with North Korea, particularly in light of public assessments that the likely North Korean uranium enrichment program might reach a stage of producing weapons by 2007.
- The Commission recommends that Congress press the administration to renew efforts to secure China's agreement to curtail North Korea's commercial export of ballistic missiles and to encourage China to provide alternative economic incentives for the North Koreans to substitute for the foreign exchange that would be forgone as a result of that curtailment.
- As recommended in the Commission's 2002 Report, and now similarly proposed by President Bush and the U.N. Secretary General, the Commission reiterates that Congress should support U.S. efforts to work with the U.N. Security Council to create a new U.N. framework for monitoring the proliferation of weapons of mass destruction and their delivery systems in conformance with member nations' obligations under the Nuclear Non-Proliferation Treaty, the Biological Weapons Convention, and the Chemical Weapons Convention. This new monitoring body would be delegated authority to apply sanctions to countries violating these treaties in a timely manner or, alternatively, would be required to report all violations in a timely manner to the Security Council for discussion and sanctions.[75]
- As recommended in the Commission's 2002 Report, the Commission reiterates that Congress should act to broaden and harmonize proliferation sanctions by amending all current statutes that pertain to proliferation to include a new section authorizing the president to invoke economic sanctions against foreign nations that proliferate WMD and technologies associated with WMD and their delivery systems. These economic sanctions would include import and export limitations, restrictions on access to U.S. capital markets, restrictions on foreign direct investment into an offending country, restrictions on transfers by the U.S. government of economic resources, and restrictions on science and technology cooperation or transfers. The new authority should require the president to report to Congress the rationale and proposed duration of the sanctions within seventy-two hours of imposing them. Although the president now has the authority to select from the full range of economic and security-related sanctions, these sanctions are case specific and relate to designated activities within a narrow set of options available on a case-by-case basis.[76]

Appendix A Current U.S. Sanctions on the PRC

ACT	SANCTIONED PARTY(IES)	SANCTION	REASON FOR SANCTION	DATE OF SANCTION	DATE SANCTION WAIVED
Foreign Relations Authorization Act of 1990–91 (Tiananmen Sanctions)		• Suspension of: 1) Export of Satellites for Launch by the People's Republic of China 2) Nuclear Cooperation with the People's Republic of China	• Tiananmen Square crackdown	• 1990	1) Presidential waivers for the export of satellites for launch by the PRC occurred in the following cases: —Aussat-1 and -2 and Frija, 1991 —Asiasat-2, Apsat, Intelsat-7A, Starsat, and AfriStar, 1992 —Iridium and Intelsat-8, 1993 —Echostar, 1994 —Cosat, Mabuhay and Chinasat-7, 1996 —Asia Pacific Mobile Telecommunications (APMT) satellite, 1996 —Globalstar, 1996 —Satellite parts for PRC Fengyun-1, 1996 —Sinosat, 1996 —Chinasat-8 (built by Loral), 1998 2) 1998 (Presidential waiver)
1990 Missile Technology Control Act	• China Precision Machinery Import-Export Corp. and China Great Wall Industry Corp. • China's Ministry of Aerospace Industry	• Prohibition of the export of missile-related computer technology and satellites • Prohibition of the export of Missile Technology Control Regime (MTCR) items and U.S. government contracts	• PRC transferred missile-related technology to Pakistan • PRC shipped M-11 related equipment to Pakistan	• 1991 • 1993	• 1992 (Presidential waiver) • 1994 (Presidential waiver)

	• China Metallurgical Equipment Corporation	• Prohibition of U.S. exports of MTCR annex items to the sanctioned entity	• Proliferation of missile technology to Pakistan	• 2001 (Duration of a minimum of 2 years)	
Iran Nonproliferation Act of 2000	• Liyang Chemical Equipment, China Machinery and Electric Equipment Import and Export Company (aka China National Machinery and Electric Equipment Import and Export Company), and a Chinese individual	• Prohibition of U.S. government procurement of goods and services from the sanctioned entities. Prohibition of U.S. government assistance to the entities. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Supplying Iran with materials used in the manufacture of chemical and biological weapons	• January 2002 (Duration of a minimum of 2 years)	
	• Jiangsu Yongli Chemicals and Technology Import and Export Corporation	• Prohibition of U.S. government procurement of goods and services from the sanctioned entity. Prohibition of U.S. government assistance to the entities. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Reports indicate company was involved in export of dual-use items covered in the Australia Group	• 2001 (Duration of a minimum of 2 years)	
	• Liyang Chemical Equipment Company (aka Liyang Yunlong), Zibo Chemical Equipment Plant (aka Chemet Global Ltd.), China National Machinery and Electric Equipment Import and Export Company, Wha Cheong Tai Company, China Shipbuilding Trading Company, China Precision Machinery Import/Export Corporation, China National Aero-Technology Import and Export Corporation, and one Chinese individual	• Prohibition of U.S. government procurement of goods and services from the sanctioned entity. Prohibition of U.S. government assistance to the entities. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Aiding Iran's weapons of mass destruction programs	• May 2002 (Duration of a minimum of 2 years)	

Appendix A Current U.S. Sanctions on the PRC—Continued

ACT	SANCTIONED PARTY(IES)	SANCTION	REASON FOR SANCTION	DATE OF SANCTION	DATE SANCTION WAIVED
	• Taian Foreign Trade General Corporation, Zibo Chemical Equipment Plant, Liyang Yunlong Chemical Equipment Group Company, NORINCO, CPMIEC	• Prohibition of U.S. government procurement of goods and services from the sanctioned entity. Prohibition of U.S. government assistance to the entities. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Missile proliferation	• June 2003 (2 years)	
	• Beijing Institute of Opto-Electronic Technology (BIOET), NORINCO, CPMIEC, Oriental Scientific Instruments Corporation (OSIC), Zibo Chemical Equipment	• Prohibition of U.S. government procurement of goods and services from the sanctioned entity. Prohibition of U.S. government assistance to the entities. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Sold equipment or expertise that Iran could use in nuclear, chemical, and biological weapons programs	• April 2004 (2 years)	
Chemical and Biological Weapons Control and Warfare Act of 1991	• Nanjing Chemical Industries Group (PRC), Jiangsu Yongli Chemical Engineering and Technology Import/Export Co. (aka Jiangsu Yongli Chemicals and Technology Import and Export Corporation) (PRC), Cheong Yee Limited (Hong Kong), and five Chinese individuals	• Prohibition of U.S. government procurement of goods or services from the sanctioned entities or persons. Prohibition of importation into the United States of products produced by the sanctioned entities.	• Contributed to Iran's chemical weapons program	• 1997	• In effect

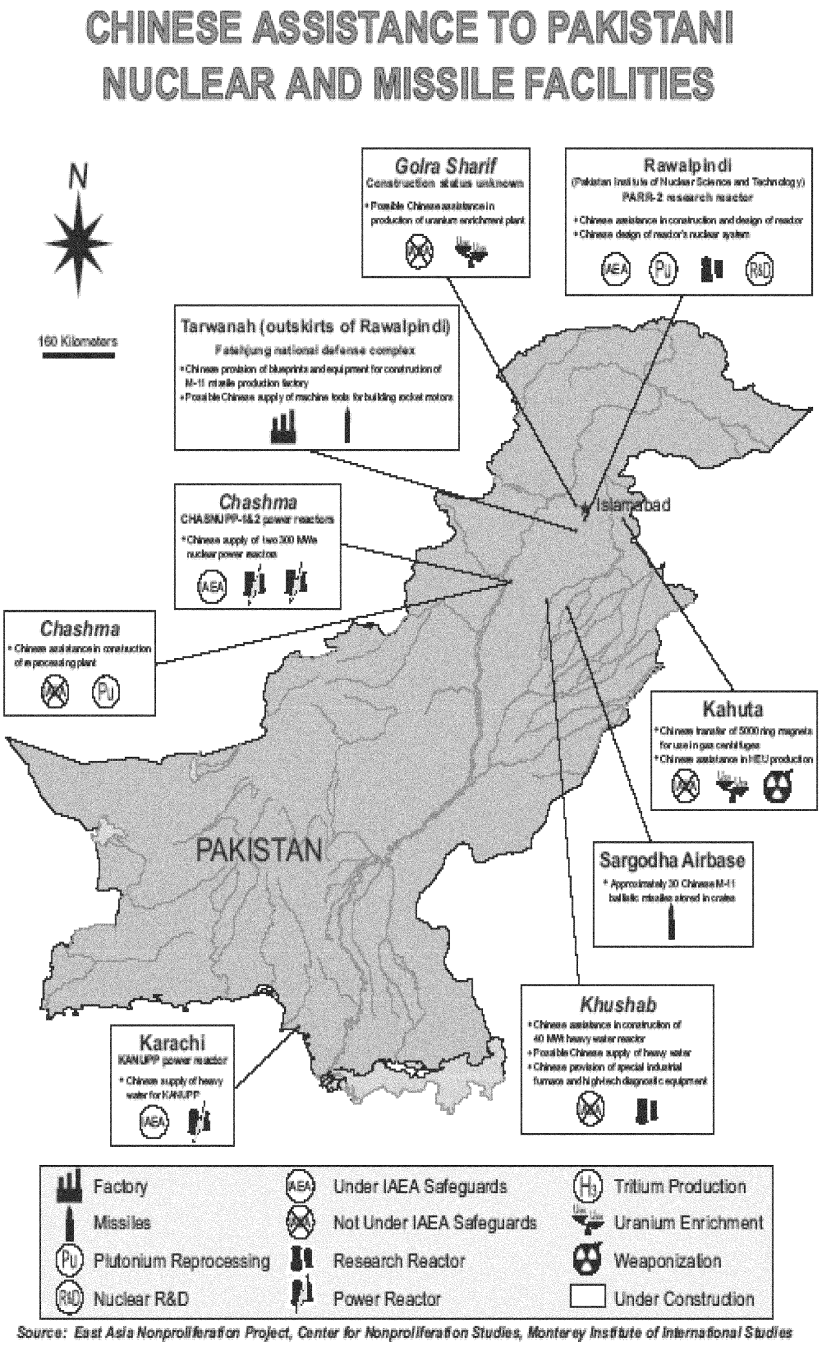
Iran-Iraq Arms Proliferation Act	• Jiangsu Yongli Chemicals and Technology Import Export Cop., Q.C. Chen, China Machinery and Equipment Import Export Corp., China National Machinery and Equipment Import Export Corp., CMEC Machinery and Equipment Import Export Co., CMEC Machinery Electrical Import Export Co., China Machinery and Electric Equipment Import Export Co., Wha Cheong Tai Co.	• Prohibition of U.S. government procurement of goods and services from the sanctioned entity. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Chemical weapons technology to Iran	• July 2002 (2 years)	
	• China Shipbuilding Co.	• Prohibition of U.S. government procurement of goods and services from the sanctioned entity. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Transfer of cruise missile technology to Iran	• July 2002	
Executive Order (12938)	• North China Industries Corporation (NORINCO)	• Prohibition of the importation into the United States of any goods, technology, or services produced or provided by this entity. Prohibition of U.S. government procurement of goods and services from the sanctioned entity. Prohibition of U.S. government assistance to the entities. No new licenses shall be granted for the transfer to these foreign entities of controlled items.	• Missile technology to Iran	• May 2003 (2 years)	• In effect

Appendix A Current U.S. Sanctions on the PRC—Continued

ACT	SANCTIONED PARTY(IES)	SANCTION	REASON FOR SANCTION	DATE OF SANCTION	DATE SANCTION WAIVED
Executive Order (12938)	• CPMIEC	• Prohibition of the importation into the United States of any goods, technology, or services produced or provided by this entity. Prohibition of U.S. government procurement of goods and services from the sanctioned entity. Prohibition of U.S. government assistance to the entities. No new licenses shall be granted for the transfer to these foreign entities of controlled items.	• Missile technology to publicly unnamed country	• July 2003	• In effect
Arms Export Control Act	• NORINCO	• Prohibition of the importation of products produced by the entity. Prohibition of U.S. government procurement of goods and services from the sanctioned entity. Prohibition of U.S. government assistance to the entities. No new individual licenses shall be granted for the transfer to these foreign entities of controlled items.	• Engaged in missile technology proliferation activities	• September 2003 (2 years)	• Waiver for 1 year on import ban for non-NORINCO products

Sources: *Federal Register* and Shirley Kan, Congressional Research Service (CRS) Report: RL31555, "China's Proliferation of Weapons of Mass Destruction."

Appendix B Chinese Assistance to Pakistani Nuclear and Missile Facilities



Source: East Asia Nonproliferation Project, Center for Nonproliferation Studies, Monterey Institute of International Studies

Appendix C China's Nuclear Technology Exports: 1980–2004

COUNTRY	TYPE OF ASSISTANCE
ALGERIA	**Research Reactor** • 15 MWt pressurized heavy water research reactor; possible provisions of heavy water for the reactor; construction began around 1988; placed under IAEA safeguards in 1992 • Designs for construction of third stage of Algeria's Center for Nuclear Energy Research
ARGENTINA	**Low Enriched Uranium** • 20 percent enriched, sold in 1980s, no safeguards **Heavy Water** • 50–60 metric tons (1981–1985); no safeguards **Uranium Concentrate** (U3O8) • 1981–1985, no safeguards **Uranium Hexafluoride Gas** (UF6) • Early 1980s, 30 metric tons; no safeguards **Highly Enriched Uranium** • 12 kg, no safeguards, (1981–1985)
BRAZIL	**Enriched Uranium** • 3 percent, 7 percent, 20 percent enriched; 200 kg total • 1984, no safeguards
CHILE	**Enriched Uranium** • 3, 7, 20 percent enriched, no safeguards (1984) • Uranium mining and processing
INDIA	**Heavy water** • 1982–1987; 130–150 metric tons • No IAEA safeguards **Low-Enriched Uranium** • 1995, for India's Tarapur reactors • Supplied under IAEA safeguards
IRAN	**Research Reactors** • 27kW subcritical, neutron source reactor; provided in 1985; currently under IAEA safeguards • Zero-power reactor; commercial contract signed in 1991; currently under IAEA safeguards • HT–6B Tokamak nuclear fusion reactor, located at Azan University • 20 MWt reactor; contract signed in 1992 but the deal was canceled due to U.S. pressure **Power Reactors:** two 300 MWe reactors • Deal suspended in 1995 and canceled in 1997 • CIA verified project cancellation **Calutrons** (electromagnetic isotope separators, EMIS) • For Karaj and Isfahan facilities; commercial contract signed in 1989; under safeguards **Uranium Hexaflouride (UF6) Production Facility** • Project canceled in October 1997 • CIA verified cancellation of deal • China possibly provided blueprints for facility **Zirconium Tube Production Facility** • Assistance continuing **Uranium Mining Assistance** **Tributylphosphate (for reprocessing)**
IRAQ	**Ring Magnets** • Exports of samarium-cobalt magnets for gas centrifuges, 1989–1990 **Lithium hydride** • 7 tons exported by the China Wanbao Engineering Company for $15 million **Weapons Grade Uranium** • 1980
LIBYA	**Nuclear Weapons Designs** • In 2004, Chinese nuclear weapons designs were reportedly discovered at Libyan facilities, probably the result of Pakistani proliferation
JAPAN	**Uranium Concentrate** • 250 Short Tons to Tokyo Electric Power (1992)

Appendix C—Continued China's Nuclear Technology Exports: 1980–2004

COUNTRY	TYPE OF ASSISTANCE
PAKISTAN	**NUCLEAR WEAPON-RELATED ASSISTANCE** **Nuclear Weapon Design** • Basic, Hiroshima-sized weapon **Nuclear Weapon Testing** • Possible inclusion of Pakistani observers at China's Lop Nur test facility (1989) **Possible Provision of Tritium Gas** • 1986, no safeguards **Uranium Enrichment** • Assistance to unsafeguarded Kahuta enrichment facility • This assistance was mutually beneficial **Ring Magnets** • About 5,000 to unsafeguarded A.Q. Khan Research Laboratory in Kahuta (1995) **Weapons-Grade Uranium for Two Devices** • Early 1980s, supplied without safeguards **Plutonium Production Reactor at Khushab** • 50–70 MW heavy water reactor (unsafeguarded) • Construction assistance • Provided special industrial furnace and high-tech diagnostic equipment (1994–1995) **Reprocessing Facility at Chashma** • Possible assistance constructing unsafeguarded facility **CIVILIAN NUCLEAR ASSISTANCE** **Power Reactor:** Chashma–1 (CHASNUPP), 300 MWe • Build by CNNC, deal signed in late 1995 • Began operating in November 1999 • Under IAEA safeguards (INFCIRC/418) **Research Reactors** • Miniature Neutron Source Reactor (MNSR); supplied under IAEA safeguards (INFCIRC/393) in 1991 • Helped construct PARR–2 research reactor, safeguarded **Heavy water (D2O)** • Up to 5 MT/year for safeguarded PHWR [Kanupp] research reactor • Possibly diverted by Pakistan to the Khushab research reactor against Chinese wishes **Fuel Fabrication Services**
NORTH KOREA	**Provided Nuclear Expertise until 1987**
SYRIA	**Neutron Source Reactor** • 30kWt miniature neutron source research reactor **Highly Enriched Uranium** • Supplied under IAEA safeguards (1992)

Source: Monterey Institute of International Studies.

China's Missile Technology Exports: 1980–Today

COUNTRY	TYPE OF ASSISTANCE
ALBANIA	**Cruise Missiles** • HY–1, HY–2 **Surface-to-air missiles (SAMs)** • HQ–2
ARGENTINA	• Missile Fuel (1995)
BANGLADESH	**Cruise Missiles** • HY–2
BRAZIL	**Missile Technology** • SS–300 **Space Launch** • Joint Satellite Program • Launcher and satellite manufacturing technology • VLS–SLV space launch vehicle

Appendix C—Continued China's Missile Technology Exports: 1980–Today

COUNTRY	TYPE OF ASSISTANCE
EGYPT	**Cruise Missiles** • 72 HY–2 antiship missiles (1990s)
IRAN	**Antimissile systems** • Modified SA–10 and SA–12 SAMs **Anti-tank missiles** • HJ–73 **Ballistic Missiles** • M–7/8610/CSS–8 • M–9/DF–15 (China cancelled the sale under U.S. pressure) **Cruise Missiles** • HY–1 • 100 HY–2 (Silkworm) • HY–4/C–201 • C–601 • YJ–1/C–801 (sales halted in October 1997) • YJ–2/C–802 (sales halted in October 1997) **Assistance to Iran's Indigenous Missile Programs** • Extensive production assistance for the 8610/CSS–8 missile • Extensive production infrastructure for HY–2, C–801 and C–802 missiles (production assistance halted in 1997) • Possible assistance to the Shahab–3 ballistic missile • FL–10 air-launched cruise missile • Assistance in converting SAMs to surface-to-surface missiles • Iran–130 ballistic missile • Tondar–68 (modified M–11) ballistic missile • Oghab/Ugab (Eagle) ballistic missile **Missile Fuel** • Various propellant ingredients • Ammonium perchlorate **Missile Guidance and Control Technology** • Guidance kits (mid-1990s) • Gyroscopes (mid-1990s) • Accelerometers (mid-1990s) • Test equipment for ballistic missiles (mid-1990s) **Surface-to-air missiles (SAMs)** • HQ–2J, HN–5, NN–5 (shoulder-fired)
IRAQ	**Cruise Missiles (1980s–1990s)** • HY–2 (Silkworm) • C–601 • YJ–1/C–801 **Missile Engine Testing Facility/Project 3209** • Supply of standard parts for liquid propellant engine, late 1980s **Missile Fuel** • 10 tons of UDMH, late 1980s • 7 tons of lithium hydride; 1989–1990; exported by the China Wanbao Engineering Company (CWEC) • Ammonium perchlorate, 1994
LIBYA	**Missile Fuel** • Lithium hydride
NORTH KOREA	**Cruise Missiles** • HY–1, HY–2 **Expertise/training** • Scud reverse engineering • Long-range missile project • Rocket engine design • Metallurgy • Airframe expertise • Small warhead design **Missile Technology** • Rocket design and production • Fiber Optic Gyroscopes • Accelerometers **Surface-to-air missiles (SAMs)** • HQ–2

Appendix C—Continued China's Missile Technology Exports: 1980–Today

COUNTRY	TYPE OF ASSISTANCE
PAKISTAN	**Ballistic Missiles and Launchers** • 34 M–11/DF–11 missiles; stored at Pakistan's Sargodha Air Force Base near Lahore; delivered in November 1992 • M–11 transporter-erector-launchers (TELs) **Possible Assistance to Indigenous Missile Programs** • Hatf–1, Hatf–2 and Hatf–3 ballistic missiles • Anza surface-to-air missiles **Missile Fuel** • Ammonium perchlorate, 10 tons seized in Hong Kong in 1996; Pakistan's SUPARCO was caught attempting to import the ammonium perchlorate from a company in Xian, China **Missile Guidance** • Gyroscopes • Accelerometers • On-board computers **Assistance to Missile Production Factory** • Rawalpindi, 40 km west of Islamabad • Likely producing Pakistani version of M–11 missile • Blueprints and construction equipment, possibly ongoing **Cruise Missiles** • HY–1, HY–2, FL–1, FL–2 **Missile technology** • M–11 components (1991–1997) **Surface-to-air missiles (SAMs)** • HQ–2 **Anti-tank missiles** • Alleged shipment of special metals and electronics for use in production (1998)
SAUDI ARABIA	**Ballistic Missiles** • 30+ DF–3 (CSS–2) missiles; deliveries began in 1988; and included construction of launch complex, training, and post-sale systems maintenance • In 1997, Saudi Arabia requested from China possible replacements for the aging DF–3 missiles; China did not provide any replacements
SYRIA	**Ballistic Missiles** • DF–15/M–9 missiles, Syria provided advance payments • Cancelled under U.S. pressure in 1991; Syria possibly received test missile **Assistance with Indigenous Programs** • 30 tons of ammonium perchlorate in 1992 • Technical exchanges
THAILAND	**Cruise Missiles** • 50 YJ–1/C–801 missiles
TURKEY	• Short- and long-range missile technology (1995) • Joint production of WS–1 artillery rocket (1997–)
UNITED ARAB EMIRATES	**Ballistic Missiles** • Scud-B missile launchers **Cruise Missiles** • HY–2

Legend:
MWt = megawatts thermal
MWe = megawatts electric
MT = metric tons
Kg = kilogram
Kw = kilowatt
KWt = kilowatt thermal

Source: Monterey Institute of International Studies, East Asian Nonproliferation/Center for Nonproliferation Studies (EANP/CNS), 2004.

Appendix D Third World Ballistic Missile Cooperation Between or Among China and North Korea

- **Iran.** In 1983, Iran signed a long-term financing agreement with North Korea for its Scud-B development program and offered its assistance in acquiring critical western technologies.[77] By 1987, North Korea sold Iran approximately 90 to 100 missiles and associated transporter erector launchers. By 1988, Iran had established a Scud-B production plant. In a follow-on to its Scud-B program, Iran negotiated for the purchase of the North Korean Nodong-1 intermediate-range ballistic missiles.[78] By 1989, Iran's domestically manufactured version of the Nodong the Shabab-3 missiles was undergoing flight-testing.[79] Between 1989 and 1990, Iran-China cooperation resulted in the purchase of approximately 150–200 M–7/8610 ballistic missiles and associated production technology.[80] By 1997, Iran was jointly developing with China the NP–110 short-range solid-fuel missile.[81] China has also assisted Iranian efforts to upgrade its North Korean Scud missile arsenal and North Korea has assisted Iranian efforts to improve the accuracy of the C–802, anti-ship cruise missiles Iran bought from China.[82]
- **Egypt.** Both China and North Korea have a long history of supporting Egypt's ballistic missile development efforts. Egypt-North Korea missile cooperation began in 1981,[83] and by the mid-1980s Egypt had provided North Korea an initial shipment of missiles. These were the stock from which North Korea established its domestic ballistic missile program. North Korea then assisted Egypt to produce an extended-range Scud-B.[84] Egypt has the additional goal of producing its own version of North Korea's SCUD-C.[85] This joint cooperation has been ongoing since. Documents seized in a raid on a North Korean front company in Bratislava, Slovakia in 2003, show that North Korea attempted to acquire missile technology for Egypt.[86] China's involvement with Egypt dates to June 1990, when it signed a protocol to help Egypt modernize its Sakr missile factory to produce a new version of the Scud-B.[87]
- **Pakistan.** Pakistan has both liquid-fuel and solid-fuel ballistic missile programs. It continues to receive extensive assistance from China for its solid-fuel ballistic missile and from North Korea for its liquid-fuel missiles. China-Pakistan cooperation began in the early 1990s, when China sold Pakistan M–11 SRBMs. This transfer also included production and manufacturing capability.[88] China has sold Pakistan more than thirty of the 180-mile range M–11 ballistic missiles and the means to build the 450-mile-range Sahheen-1 and 1200-mile-range Shaheen-II missiles.[89] In the late 1990s Pakistan reportedly purchased twelve to twenty-five North Korean Nodong missiles and by 1998 had conducted a Ghauri missile test flight. The Ghauri and the Nodong are probably the same missile.[90]
- **Syria.** Syrian-North Korean cooperation in ballistic missiles probably began in early 1989, when Syria sought North Korean assistance to establish a domestic missile production capability.[91] In 1991, Syria had purchased Scud-Cs from North Korea and by 2000 had upgraded its missile force with the purchase of the Nodong.[92] Chinese cooperation has been in the area of technology

vice the export of actual missiles. In 1999, Chinese-origin aluminum powder was delivered to Syria's missile program and it is not known if this was with Chinese complicity. China may have also assisted Syria with production technologies and materials and may have helped Syria to upgrade its North Korean missiles.

- **Libya.** In the early 1990s, North Korea assisted Libya in establishing its Scud production facility near Tripoli. This has been a long-term effort, and in 1999 missile components were interdicted at Gatwick Airport in England. This confirmed reports that North Korea has sold Scud and Nodong missiles to Libya.[93] Additionally, it has been reported that by June 1998, Chinese technicians were connected to the Al-Fatah missile program and that China continued to transfer missile technology at least until early 2000.[94]

ENDNOTES

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15. Jennifer C. Bulkely, "Making the System Work: Challenges for China's Export Control System," forthcoming publication in *Non-Proliferation Review*, vol. 11, no. 1 (spring 2004).
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mentation is an unlikely remedy as the IEEPA is to be invoked only in the event of a national economic emergency.

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CHAPTER 6
CHINA'S ENERGY NEEDS AND STRATEGIES

*"**ENERGY.** The Commission shall evaluate and assess how China's large and growing economy will impact upon world energy supplies and the role the United States can play, including joint R&D and technological assistance, in influencing China's energy policy."* [P.L. 108–7, Division P, Sec. 2(c)(2)(C)]

KEY FINDINGS

- China is now the world's second largest energy consumer and third largest net oil importer, increasingly dependent on outside sources, and this dependency influences China's energy and national security policies. China has a growing sense of insecurity because of increased dependence on tanker-delivered Middle East oil via sea lanes, including the Straits of Malacca and Hormuz, controlled by the U.S. Navy.
- Reliable access to energy supplies is essential for China's continued rapid economic growth. Shortages are even now forcing China to ration electric power supply. This has slowed down the manufacturing sector and may eventually significantly slow down overall economic growth.
- China's approach to securing its imported petroleum supplies through bilateral arrangements is an impetus for nonmarket reciprocity deals with Iran, Sudan, and other states of concern, including arms sales and WMD-related technology transfers that pose security challenges to the United States.
- The United States can influence China's state-controlled energy policy through technical assistance and through diplomacy. The United States can provide technical assistance to China and participate in joint research and development (R&D) aimed at developing more efficient energy sources, including clean coal technology. Through diplomacy, the United States can promote fuller integration of the PRC into the international oil security system.
- China does not have a meaningful strategic petroleum reserve today, although it is planning to address this deficiency. It does not participate in multilateral market stabilizing organizations such as the International Energy Agency (IEA) and thus benefits from global stockpiles and coordination in world energy crises and speculator-driven price spikes without incurring the attendant costs.
- China's large and rapidly growing demand for oil is putting pressure on global oil supplies. This pressure is likely to increase in the future, with serious implications for U.S. oil prices and supplies and therefore U.S. economic security. China's share of world oil consumption is projected to increase from almost seven per-

cent today to more than nine percent by 2020, whereas U.S. oil consumption is projected to decrease slightly and remain at almost twenty-five percent.

OVERVIEW

China's economic trajectory has driven its expanding energy needs, which have now made it the world's second largest energy consumer behind the United States. Accompanying this growing energy demand has been a growing dependence on imported oil, with China now the world's second largest oil consumer and third largest oil importer.[1] These trends clearly demonstrate that China has become—and will continue to be—a major player in world energy markets.

These developments have several important implications for the United States. First, China's long-term impact on global energy supplies needs to be carefully analyzed, along with whether China's current approach to energy security is conducive to U. S. and other oil-importing countries' long-term energy strategies. Second, China's heavy reliance on coal as an energy source poses a tremendous challenge to both China and the world, as much of this consumption involves unwashed coal and has lead to a surge in air pollution and emissions of greenhouse gases. Lastly, to enhance its energy security, China has entered into energy deals with a number of countries of concern, including Iran and Sudan. These arrangements are troubling, especially to the extent they might involve political accommodations and sales or other transfers of weapons and military technologies to these nations. In sum, China's growing energy demands, particularly its increasing reliance on oil imports, pose economic, environmental, and geostrategic challenges to the United States.

Moreover, China's increasing energy demands pose challenges for China's economic growth. China's export-led growth, fueled by its manufacturing sector, is dependent on energy supplies. China is experiencing increasing electric power shortages. Coal provides around two thirds of China's energy needs, but due to corruption, inefficiencies, and infrastructure problems, China, which has the world's third largest coal reserves, must now import coal in addition to growing amounts of oil and gas. Today, nineteen of thirty-one provinces are rationing electricity, and some factories are limited to a four-day week. This could take five percentage points off the expected annual industrial growth rate and reduce foreign investment.[2]

Proper U.S. policy in this area is a complex calculation given conflicting dynamics. On the one hand, improved energy efficiency and bringing China into the international energy system could help manage oil prices and oil crises, mitigate environmental degradation, and potentially mitigate China's outreach to certain states of concern like Iran and Sudan (and any associated weapons proliferation involved). On the other hand, it will make China's industrial base more efficient, thereby enhancing China's manufacturing competitiveness with the United States and exacerbating the concerns raised in Chapter 1 and may reduce U.S. energy leverage in the event of any U.S.-China conflict.

On October 30, 2003, the Commission held a hearing in Washington on China's energy needs and strategies to evaluate the impact of China's energy demands on global supplies, U.S. security interests, and possible ways in which the United States can influence China's energy policy. The Commission heard from Energy Information Administration (EIA) Administrator Guy Caruso and from energy industry analysts regarding China's role in the supplier-consumer country dynamics of the global petroleum marketplace.

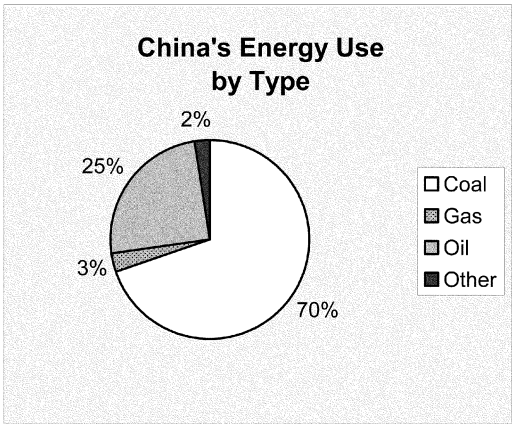
ANALYSIS AND FINDINGS

China's Energy Supply and Demand

China's energy development and policies are directed by the central and provincial governments. These governments "maintain their hold on the energy sector through ownership of energy companies, power to approve investments, and control over energy prices. China's energy policy is based upon a 'strategic' approach which eschews dependence on markets."[3] China's stated energy policy goals are a reduction of reliance on imports by further diversifying the types of energy used, broadening import sources, and raising the levels of technology used in energy production and consumption. In practice, the realization of China's goal of reduced dependency will probably be limited to coal. According to EIA Administrator Guy Caruso, China's actual long-term oil security goals are the development of a strategic petroleum reserve and to "become more involved in international multinational cooperation during oil emergencies."[4] Today, however, progress toward these goals is minimal. China's pragmatic approach is to deal with dependency while reducing vulnerability. The strategy includes leveraging bilateral relationships with key Middle Eastern and African suppliers, building stronger ties with Russia, establishing a market position in Central Asia, and continuing energy efficiency and alternate fuel R&D programs.

According to the EIA, China's total energy consumption will increase at an average annual rate of 3.8 percent through 2020. China's oil consumption was 5 million barrels per day (mb/d) in 2001 and is expected to be 10.9 in 2025, increasing at an average annual rate of 3.3 percent a year. By comparison, the United States is expected to go from 19.6 mb/d to 29.2 mb/d, a 1.7 percent average annual increase.[5] Figure 6.1 presents the type of energy China used, by percent, in 2003.

Figure 6.1 China's Energy Use by Type



Note: See appendix A, China's Energy Trends for further detail.
Source: Eric Ng, "Mainland Power Producers in a Quandary," *South China Morning Post* (Hong Kong), September 10, 2003.

Coal

China is the largest producer and consumer of coal in the world. It will remain China's dominant energy source for the foreseeable future.[6] After the United States and Russia, China has the world's third largest coal reserves (114 billion tons), and coal provides seventy percent of China's energy needs, including eighty-three percent of the electric power sector needs. These reserves are concentrated in China's north, northeast, and the central provinces, but energy requirements are primarily on the eastern seaboard. China is the world's second largest coal exporter. Yet, last year China imported almost eleven million tons of coal, primarily from Australia, the world's largest exporter, because it was cheaper to ship coal from Australia to China's eastern seaboard than to transport it from the Chinese interior by train. In addition, WTO entry has made access to foreign coal much easier for Chinese markets.[7] Sixty percent of China's coal is used in the electric power sector, increasing by fifty to sixty million tons each year. This increase is expected to be offset by the Three Gorges project, projected to produce the energy equivalent of fifty million tons of coal—or ten percent of current demand for electricity—when it is fully operational in 2009.[8] While China's coal imports are driven in part by delayed exploration, dropping capacity, closing of local and small mines, and infrastructure and transportation inadequacies, the main reason is the composition of China's coal reserves—its high grade coal is located in the interior, while the growth-generated power consumption is on the seaboard. While today China's growth-driven coal imports are not a geostrategic concern, future shifts in energy markets could increase pressure on supplies.

More pessimistic analyses hold that the vast bulk of China's reserves will be depleted in the near-to-medium term. Sixty-eight percent of China's coal-producing townships are in their autumn period, twelve percent are ailing, and only the remaining twenty percent have long-term production potential. Most analysts believe

that growth in demand will consistently exceed supply. According to *The Economist*, "China's considerable coal exports can be expected to fall, and it could become a net coal importer as soon as 2005. . . . [China] 'faces a risk of long-term coal and power shortages.'"[9]

Electric power drives China's manufacturing sector. China is developing twenty gigawatts of additional power generation capacity each year to sustain export-driven economic growth.[10] Clean Coal Technology (CCT) is not widely implemented in China's power industry. Many power plants are small or medium (less than three hundred megawatts in size), designed to burn low-quality (low thermal efficiency and polluting) coal. The results are high power generation costs, pollution, and insufficient generation capacity. Improving the efficiency of the coal sector could slow down the accelerating reliance on energy imports. But transportation infrastructure inadequacy, capital rationing, and water shortages restrict efforts to improve the quality of coal through greater use of coal-washing plants, as does lack of demand for better quality coal. Due to inadequate investment, there are inadequate and/or mismatched transmission capacities, i.e., an insufficient grid.

Furthermore, China has a dual pricing system for coal, which favors big cities and major power consumers. Coal prices keep rising due to mine closings and transportation cost increases, but the state-mandated electric power price is static. In spite of the inequitable pricing of coal, the "system has largely succeeded in maintaining a virtually flat electricity tariff to China's industries and main cities."[11] Power shortages likely will continue until 2007, as it will take time to build additional capacity. Some predict an eventual glut due to overbuilding, the result of a characteristic command-economy overreaction. According to Philip Andrews-Speed, the current system "is unable to cope with China's growing energy needs. . . . Last year, a discontinuity between the pricing systems for coal and electric power caused a showdown between the two industries: the power companies were unwilling to pay the higher prices while their output prices were constrained. . . . The lack of a coherent policy for the electrical power sector will continue to be a major obstacle to investment."[12]

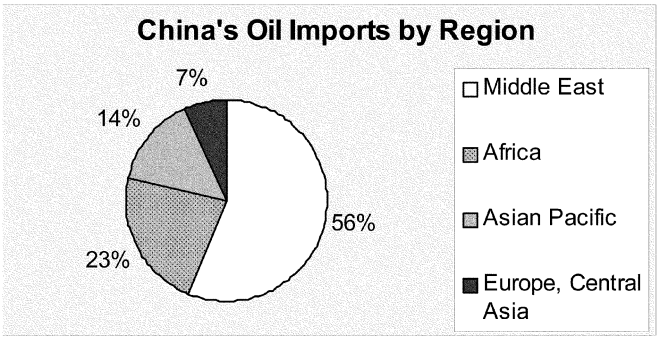
Oil

Oil accounts for twenty-five percent of China's energy use, and China needs to import increasing quantities to sustain growth. In the next decade, the number of vehicles on China's roads is expected to grow to one hundred million, about one half of today's U.S. combined car and truck total.[13] In mid-November 2003, China announced fuel economy standards for new cars and trucks. These fuel efficiency standards, stricter than ours, are a component of China's comprehensive energy security policy.[14]

China became a net oil importer in 1993 and has overtaken Japan to become the second largest petroleum consumer after the United States. Imports are expected to rise to 738 million barrels in 2004 against a total demand of 1.993 billion barrels per year. Domestic supply has begun to plateau at around 1.240 billion barrels a year.[15] EIA forecasts that China's oil imports will increase from today's roughly two million barrels per day to nearly eight

million in 2025, or to sixty percent of China's total oil consumption. The IEA expects China's oil imports to double to four million barrels per day by 2010 and reach ten million barrels per day by 2030.[16] Domestic oil production is flat.[17] (See appendix B, "China's Projected Oil Production v. Consumption, 1990–2020." "China is having an incredible influence on market flows, not just in Asia, but on a world-wide basis. . . . The whole center of gravity of the world energy market is changing."[18] This year and next, China is expected to account for one third of the increase in global oil demand in the $1 trillion a year global oil market.[19] Figure 6.2 presents China's oil imports from other regions in 2001.

Figure 6.2 China's Oil Imports by Region, 2001



Sources: FBIS document CPP20030425000288; China State Customs Administration 2001.

The Middle East, Africa, and Central Asia are the primary areas from which China seeks to meet its long-term needs for oil imports. China is also looking for additional sources of oil and gas in Indonesia, Burma, Venezuela, Peru, and Canada. China is reducing its dependence on Middle East imports, and Angola is now its number one oil supplier.[20] In the Middle East, China is pressing for access to reserves in Iran, the second largest exporter in the Organization of the Petroleum Exporting Countries (OPEC) after Saudi Arabia and hoping that any new Iraqi government will stand behind oil field development contracts it negotiated with China back in 1997. In September 2003, China's main oil company, China National Petroleum Company (CNPC), signed a cooperation protocol to develop Iran's Azadegan oil field. In the past year, Chinese state oil companies have also made investments or struck deals for future investment in Algeria, Azerbaijan, Ecuador, Kazakhstan, Myanmar, Thailand, and Venezuela. China probably will be unable to gain an upstream foothold in Saudi Arabian, Kuwaiti, and United Arab Emirate (UAE) fields, already controlled by western and Middle Eastern oil companies, however. Moreover, China's territorial disputes in and around the South China Sea may be related to its expectations of potential oil reserves and may shape its future efforts to become a more dominant regional power.

Throughout the past year, China and Japan have been competing over the construction of an oil pipeline from Angarsk, Russia, to the Pacific. China wants it to go through its northeast to Daqing, one thousand four hundred miles, at a cost of $2.5 billion. Japan

wants it to go through Russia to Nakhodka, two thousand three hundred miles, at an originally estimated cost of $5.0 billion to $7.5 billion. Further decisions had been put on hold since Mikhail Khodorkovsky, president of Yukos, the company backing the Daqing route, was arrested. On February 20, 2004, Russian Energy Minister Igor Yusufov announced that Russia is now studying the proposal to build the crude oil pipeline to Nakhodka. While China was concerned about a possible pullout by Russia from the agreement, *China Daily* pointed out that Yusufov's word is not final.[21] But it appears that Russia has finally decided to go the Nakhodka route, at an increased estimated cost of $10 billion due to the increased cost of pipe.[22] Figure 6.3 presents China's oil imports by country of origin in 1994, 1999, and 2001, by percent.

Figure 6.3 China's Oil Imports by Country of Origin, 1994, 1999, and 2001, by percent

Import Source Country	1994 Import Amount %	1999 Import Amount %	2001 Import Amount %
Iran	*	10.8	18.0
Saudi Arabia	*	6.8	14.6
Oman	27.3	13.7	13.5
Sudan	~	~	8.3
Angola	3.0	7.9	6.3
Vietnam	4.9	4.1	5.6
Indonesia	38.3	10.8	4.4
Yemen	10.2	11.3	3.8
Equatorial Guinea	~	2.2	3.6
Russia	~	*	2.9
Kuwait	~	*	2.4
Qatar	~	~	2.2
United Kingdom	~	6.0	*
Norway	~	5.5	*
Nigeria	~	3.7	*
Iraq	~	2.7	*
Australia	*	2.5	*

Legend:
* Denotes imports less than two percent
~ Denotes no imports
Source: China Customs Bureau.

China is the world's largest economy without a meaningful strategic petroleum reserve—seven to ten days, compared to Japan's one hundred. According to Kang Wu, an energy analyst with the

East-West Center in Hawaii and a witness at the Commission's October 30 hearing, China is addressing this problem with plans to expand its strategic reserve to fifty to fifty-five days worth of oil imports by 2005 and sixty-eight to seventy days by 2010.[23]

There is a clear distinction between U.S. and PRC approaches to securing oil supplies. Whereas the United States has shifted from an oil import strategy that was based upon controlling the oil at its source to one that is based on global market supply and pricing, the Chinese strategy is still focused on owning the import oil at the production point. According to James Caverly, of the U.S. Department of Energy, "[t]he U.S. strategic framework makes certain that plenty of oil is available in the world market so that the price will remain low and the economy will benefit." The Chinese policy is to own the barrel that they import "... to gain control of the oil at the source. Geopolitically, this could soon bring United States and Chinese energy interests into conflict. Both countries will be in the Persian Gulf for oil."[24] While China's direct investment into energy production could increase global energy supplies, its strategy of securing its own stake in an energy-exporting state, particularly in states of concern, does not appear on balance to contribute to the larger energy security picture for other energy-importing nations. According to EIA Administrator Caruso, in practice PRC equity investment has been comparatively small and not very rewarding.[25] To reduce its increasing dependence on the Middle East, China is diversifying and beginning to shift its energy activities toward the construction of pipelines as part of its comprehensive energy security policy.

On December 23, 2003, the State Council issued a white paper entitled *China's Policy on Mineral Resources*, which states that in order to implement former President Jiang Zemin's pledge to build a well-off society in an all-round way by 2020, China will depend mainly on the exploitation of its own mineral resources to guarantee the needs of its modernization program. The paper noted that "(a)bundant petroleum resources have been discovered in the western regions. Important discoveries have also been made in the Bohai Sea area. In the old oil fields, deeper formations will be exploited" to increase "verified oil reserves and maintain a rational rate of self-sufficiency in oil," reduce reliance upon spot trade, and encourage long-term supply contracts with foreign companies and imports from diversified sources.

The International Energy Agency (IEA), an autonomous body within the Organization for Economic Co-operation and Development (OECD), was established in November 1974 in the wake of the 1973–74 oil crisis. Energy security is its core activity. IEA member countries are committed to the maintenance and improvement of its emergency response systems. IEA gathers and analyzes statistics; administers a plan to guard member countries against the risk of a major disruption in oil supplies; coordinates national efforts to conserve energy and develop alternate energy sources as well as to limit pollution and energy-related climate change; disseminates information on the world energy market; and seeks to promote stable international trade in energy. The IEA oil security system includes maintenance by members of national emergency oil reserves and stockdraw plans, other national measures such as

demand restraint, fuel switching, and surge oil production; operation and coordination of national emergency organizations; testing response measures and training; mechanisms for industry advice and operational assistance; and a reallocation system. According to the IEA's *2002 World Energy Outlook*, IEA stocks were equivalent to 114 days of net imports. IEA importing member countries have a legal obligation to hold emergency oil reserves equivalent to at least ninety days of net imports. Since 1973, the largest oil supply disruption occurred in the 1978–79 Iranian revolution, resulting in a supply shortfall of 5.6 mb/d for six months. Today, the IEA member countries hold about 1.3 billion barrels of public oil stocks, and the IEA feels that its stockdraw potential is sufficient in magnitude and sustainability to cope with the largest historical supply disruption. The IEA cooperates with important nonmember oil-producing and -consuming countries including China.[26] Further involvement of China in the IEA's coordinated multilateral energy security activities could be conducive to the IEA's primary mission of energy security and end China's counter-productive spot market buying such as occurred prior to the Iraq invasion.

Natural Gas

Gas use currently constitutes only three percent of total PRC energy consumption; however, some ambitious gas infrastructure projects have already been launched to support rapid growth targets. Gas infrastructure development is expensive and time-consuming and requires the assurance of future markets and a clear government gas policy and regulatory framework. China's gas reserves were estimated at 53.3 trillion cubic feet in 2002.[27] The political reasons for shifting to natural gas are environmental and security related (i.e., dirty coal and imported oil). Furthermore, existing gas pipelines are underutilized, because China's cities do not have adequate distribution networks to bring the piped gas to individual users.[28] China's natural gas demand is projected to be 2.8 billion—3.4 billion cubic feet by 2010 and 6.4 billion cubic feet by 2020—with fifty-three percent for power generation, twenty-one percent for the chemical sector, and twenty-five percent for city fuel. To meet this demand, China National Offshore Oil Corporation (CNOOC) has signed a $12 billion, twenty-five year contract with Australia for purchase of liquefied natural gas (LNG) from Australia's North Shelf Project.[29] As discussed in Chapter 5, a PRC state-owned company and Iran have executed a $20 billion, twenty-five-year LNG contract.

PRC government plans call for increased gas consumption from the current three percent to eight to ten percent (from 34 billion cubic meters [bcm] to 200bcm) by 2020. The degree of increase depends on economic growth and infrastructure development assumptions. According to the State Development and Reform Commission's Energy Bureau, this goal will require a $26.5 billion investment in pipeline and terminal construction. Even then, domestic supplies will meet only sixty percent of the projected 200bcm demand. The rest will be imported by pipelines from Russia, Uzbekistan, Turkmenistan, and Kazakhstan, and as LNG primarily from Australia and Indonesia—in some cases involving equity investment—but also Iran, Russia, and Qatar. Several LNG

terminals are planned, meeting demand as well as supply security needs: unlike piped natural gas, LNG can be stored.[30] LNG is less vulnerable to terrorism than pipelines.

But, according to the IEA, cheap and abundant domestic coal remains the main competitor to increasing natural gas use, and the inadequate local gas distribution system is a major weakness in achieving the goal. According to the IEA's William Ramsay, the "key success factor is to secure paying customers, otherwise you run the risk of transporting the gas a long way for nothing."[31]

Nuclear Energy

Today, nuclear energy provides only 1.4 percent of China's electric power sector needs. China wants to build thirty-two reactors in addition to today's operational nine by 2020. Nuclear power is expected to account for eight percent of China's future electric power needs. The request for proposals to build the initial four reactors is expected to be issued shortly. Westinghouse and the French company Areva are considered to be the chief competitors, although the existing plants are of French, Canadian, Russian, Japanese, and Chinese designs. This competition is very significant, because China has indicated it wants a standardized design.[32] China's increased use of nuclear energy raises concerns about whether China has sufficient capacity to handle and safeguard spent nuclear fuel.

Joint R&D and Technological Assistance Opportunity Areas

As noted at the outset of the chapter, providing energy efficiency assistance to China may improve China's economic competitiveness, the subject of Chapter 1, but such programs may also work to reduce China's pressure on the world's energy (especially oil) supplies. China will continue to rely on coal as its main source of primary energy. If the PRC can use its coal more efficiently and cleanly, this increased efficiency will offset oil consumption, especially for generation of electric power. Because of coal shortages, the power sector has been increasingly relying on diesel generators. Improved coal production and power plant efficiency in China will reduce pressure on global energy supplies as well. If China can see a way out of dependency on the Middle East, it may be less motivated to enter into reciprocal relationships with states of concern in the Middle East that involve weapons and other nonmonetary concessions. Joint programs can be expected to provide opportunities for U.S. investment in the PRC energy sector (coal and nuclear-fired power plants) resulting in U.S. jobs and profits for U.S. power plant builders and spin-offs with efficiency and environmental benefits for the United States and the world.

Several types of energy technology assistance are currently feasible. The first is the Fischer-Tropsch technology or the coal gasification paraffin process that turns coal into diesel fuel. The costs of this process have dropped to around $30 per barrel. Some companies are currently producing diesel not from coal but from slag, or waste, to transport fuel within the existing infrastructure in an environmentally friendly way. Coal gasification permits sequestration of carbon dioxide. Also, coal gasification, together with the "combined cycle,"[33] produces gas competitive with natural gas. Another technology uses genetically modified biocatalysts to break down cel-

lulose into transportation fuel as ethanol by using straw waste from China's rice farms as feedstocks for transportation fuel. A third possibility is thermal depolymerization—a new waste-to-fuel process that is about to be demonstrated commercially in a ConAgra processing plant in Missouri.[34]

The objectives of the U.S. Department of Energy (DOE)—China Bilateral Science and Technology (S&T) Cooperation are to promote energy security interests between the world's two largest energy consumers, increase market opportunities for U.S. companies and technologies, deploy clean energy technologies, leverage U.S. S&T investments through mutually beneficial cooperation, and to positively influence China's nuclear nonproliferation, export controls, nuclear safety and health, and environmental and waste management. DOE has six S&T cooperation agreements/protocols and twelve annexes with China. Areas of collaboration include the following:

1. High Energy Physics Implementing Accord
2. Protocol on Nuclear Physics and Controlled Magnetic Fusion
3. Fossil Energy Protocol
4. Energy Efficiency and Renewable Energy Protocol
5. Peaceful Uses of Nuclear Technology
6. Protocol on the Exchange of Energy Information
7. Cooperation on the Beijing 2008 Green Olympics[35]

Further technological cooperation projects are on the horizon. PRC fossil fuel efficiency and pollution problems can be effectively addressed by U.S. "off-the-shelf" technologies. Several other potential target areas for technological assistance include coal mining practices efficiencies, coal washing, coal bed methane, new power plant thermal efficiency, and the addition of desulphurization equipment and low NOx burners and particulate emission control equipment on power plants. Several problems hinder such cooperation. From China's perspective, there must be a direct economic, not just environmental, benefit from technology transfer to give the project high priority—not uncommon in developing countries. Further, there exists the possibility of intellectual property rights violations, an otherwise high-risk investment environment, and the PRC's underlying desire to solve problems domestically.

Most of the U.S.-China bilateral cooperative programs in the energy sector are conducted under the framework of the 1979 S&T Agreement discussed in Chapter 7.

In September 2003, U.S. Energy Secretary Abraham signed a key nonproliferation assurances agreement with China. The agreement established a process for determining the necessity of government-to-government nonproliferation assurances in relation to certain nuclear technologies. Thus, the agreement opened the door for scientific cooperation in this field, beginning with the development of the Modular High Temperature Gas Pebble Bed Reactor.[36]

In June 2002, Hydrocarbon Technologies, Inc., (HTI) and China's largest coal-making company, Shenhua Group, signed a $2 billion contract under which HTI will provide technology license, process design, and technical services for construction of the direct coal liquefaction plant. With capability to produce fifty thousand barrels per day (eighteen million per year), this plant will be the second

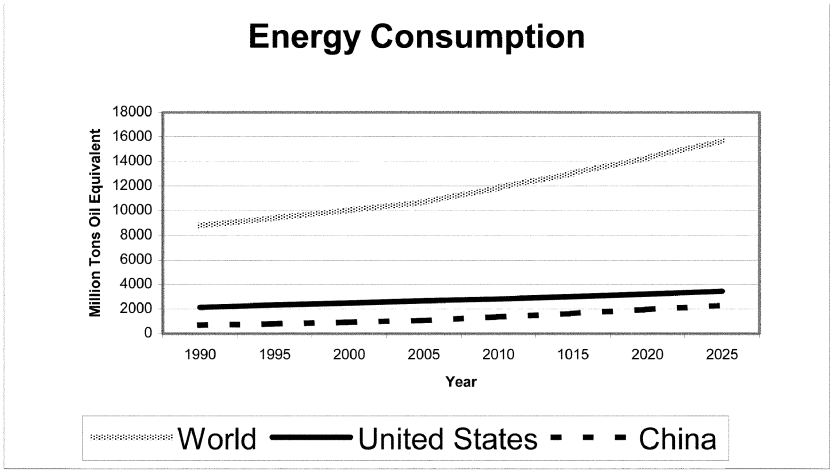
largest in the world after South Africa's Secunda plant. That plant has a capacity of twenty-five million barrels per year and was built in 1982. Construction began in 2003, and operation is to begin in 2005.

Global Energy Picture

Economic growth drives global energy demand. World GDP has grown at the annual rate of 3.1 percent, from $12.7 trillion in 1970 to $32.2 trillion in 2001, and is forecast to grow at the same rate, to $67.4 trillion in 2025. U.S. GDP is expected to grow at three percent per year to $19.3 trillion by 2025, and China's GDP is expected to grow at 6.2 percent, to $5.1 trillion in 2025.[37]

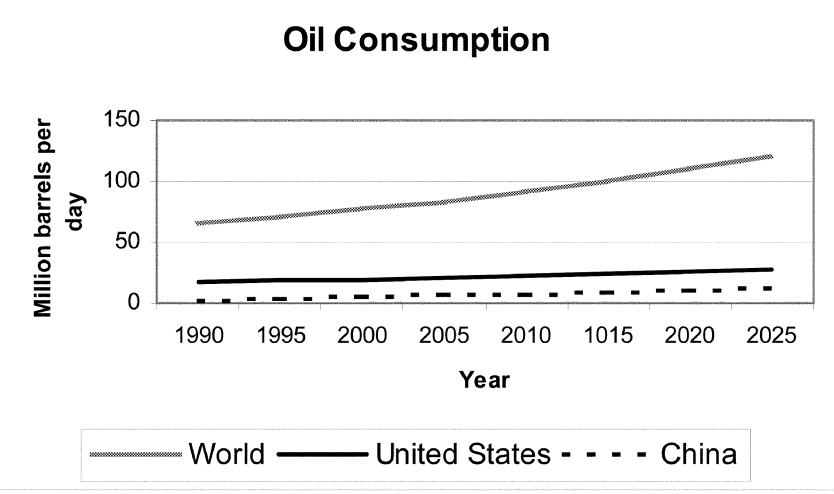
Global energy demand is projected to increase by fifty-eight percent by 2025, from 404 quadrillion British thermal units (BTUs) in 2001 to 640 quads in 2025.[38] See figures 6.4, 6.5, and 6.6 and appendix C, "China Energy Comparisons," for a more detailed view of future trends of China's energy consumption, energy intensity, and carbon intensity compared with the United States and the world total. Oil has been, and will remain, the foremost source of primary energy. World oil consumption is projected to increase from seventy-eight million barrels per day to 119 million barrels in 2025; sixty-one percent will be produced by OPEC and thirty-nine percent by non-OPEC countries. Natural gas is the fastest-growing source of primary energy and is projected to double and overtake coal use, increasing its share from twenty-three to twenty-eight percent. Coal use is projected to increase slowly at 1.5 percent per year, but its share of total global energy use will fall from twenty-four percent to twenty-two percent, with China and India accounting for seventy percent of the increase in coal use. Globally, coal is used primarily in electric power generation (sixty-four percent worldwide) and secondarily in key industries such as steel. According to EIA, "(o)ne exception is China, where coal continues to be the most widely used fuel in the country's rapidly growing industrial sector, reflecting China's abundant coal reserves and limited access to other sources of energy."[39] Globally, nuclear power as a source for electric power is expected to fall from sixteen percent in 2001 to twelve percent in 2025.[40] As a percent of total world energy, it will decrease from around seven percent to about five percent during the same period.[41] Global use of renewable energy sources is expected to increase gradually to around eight percent by 2025.[42] But in China, nuclear power utilization is expected to increase.[43]

Figure 6.4 Energy Consumption, 1990–2025



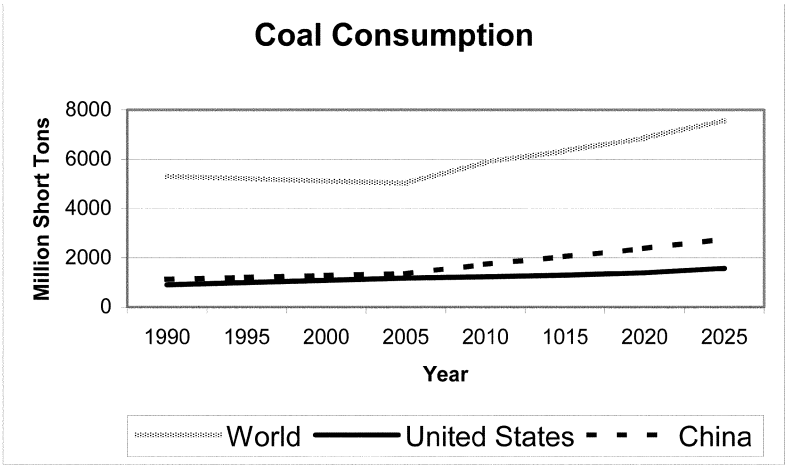
Source: Energy Information Administration, "International Energy Outlook, 2004."

Figure 6.5 Oil Consumption, 1990–2025



Source: Energy Information Administration, "International Energy Outlook, 2004."

Figure 6.6 Coal Consumption, 1990–2025



Source: Energy Information Administration, "International Energy Outlook, 2004."

World Oil Production and Supplies

The EIA's global oil resource base consists of three categories: remaining proven reserves (oil that has been discovered but not produced), reserve growth (increases in proven reserves that occur over time as oil fields are developed, produced, and improved technologically), and undiscovered resources (oil that remains to be found through new field exploration). Figure 6.7 presents these three categories with regard to China, the United States, OPEC and non-OPEC countries, and the world.

Figure 6.7 Oil as a Global Energy Resource

Country	Remaining Proven Reserves (billion barrels)	Expected Reserve Growth (billion barrels)	Undiscovered Resource Estimates (billion barrels)
China	18.3	19.6	14.6
United States	22.7	76.0	83.0
OPEC Countries	869.5	395.6	400.5
Non-OPEC Countries	396.3	334.5	538.4
World Total	1,265.8	730.1	938.9

Source: Energy Information Administration, "International Energy Outlook, 2004."

Canada's proven oil reserves have catapulted from 4.9 million barrels in 2002 to one hundred eighty million barrels in 2003 due to reclassification of Canada's oil sand resources as proven reserves as a result of dramatic reductions in production costs. Canada now has seventy-five percent of the world's oil sands, containing 1.7 trillion barrels of oil. Fifteen percent, 255 billion barrels, is recoverable. Today's production is seven hundred thousand bl/d (barrels

per day), and 2025 estimated production is 2.2 mb/d, of which one half will be consumed by the United States. The reason that the numbers are not higher is lack of transportation infrastructure.[44] Figure 6.8 presents global oil production and reserves by country.

Figure 6.8 Percentage of Global Oil Production and Reserves by Country

(Including adjustments due to recent Canadian developments in Canada's oil reserves)

Country	% World Production	% Reserves	Country	% World Production	% Reserves
North America	18.5	17.7	**Middle East**	29.2	56.5
United States	10.4	1.8	Saudi Arabia	11.6	21.5
Canada	3.3	14.8	Iran	4.8	7.4
Mexico	4.9	1.0	Iraq	2.9	9.3
Africa	11.1	7.6	Kuwait	2.7	8.0
Asia Pacific	10.6	3.2	United Arab Emirates	3.2	8.0
Latin America	8.8	8.1	**Europe**	9.1	1.6
Eurasia	12.5	6.4	**Other**	4.0	
Russia	6.8[45]				

Source: Cambridge Energy Research Associates, Accenture, and Sun Microsystems, *Global Oil Trends 2003*.

Technological innovation, such as Digital Oil Field of the Future, likely will make exploration and production more exact and targeted. This would change the oil supply landscape, as physical supplies that were previously too expensive to explore will become economically feasible, expanding the world oil reserves by 125 billion barrels in the next five to ten years.[46] The U.N. Institute for Training and Research Centre for Heavy Crude and Tar Sands estimates that the combined global amount of Canada's and Venezuela's recoverable reserves is equivalent to the total recoverable reserves of the Middle East. At present, heavy oil is only 3.5 percent of global oil production,[47] but, according to an industry study, bitumen and heavy oil could make up half of the world's energy supplies by 2050.[48]

There are differing views regarding future oil supplies. According to the optimistic view, voiced during the Commission's October 30, 2003, hearing, the production of cheap crude will peak around 2040, allowing plenty of time for development and transition to other fuels, and therefore a shortage of conventional oil is not a long-term energy security problem.[49]

According to other studies, however, global production of cheap crude could peak sooner—between 2010 and 2020.[50] There is rising skepticism among energy experts that Saudi Arabia may not be able to provide oil at levels previously estimated. An internal Saudi

Aramco plan estimates total production capacity in 2011 at 10.15 million barrels per day, whereas the U.S. Department of Energy projects that Saudi Arabia will produce 13.6 million barrels per day in 2010 and 19.5 in 2020. Oil executives and government officials in the United States and Saudi Arabia predict that Saudi capacity may stall near current levels, potentially creating a significant gap in global energy supply.[51]

According to R. James Woolsey, estimates of world conventional oil reserves vary "between a trillion and two trillion barrels, depending on what probabilities you assign and how optimistic or pessimistic you are" and "the fields on the average in the world outside the Persian Gulf either have already peaked or should peak within the next very few years."[52] Peaking is when half of estimated ultimately recoverable reserves have been extracted. This is a very important point for any oilfield. When this midpoint is reached, production costs tend to escalate rather sharply. Whether the world's oil supplies peak in 2010 or 2020 depends on whether the calculation is based on the one trillion or two trillion number. When global supplies peak, there will be (1) increasing oil market dominance by the Middle East, (2) increased extraction/production costs, and (3) concurrent substantial increase in demand from the growing economies of China and India.[53]

One reason for the differing estimates is the definition and use of the terms "reserves," meaning the known quantities of oil that can be readily commercially produced, and "resources," defined as theoretical estimates of total amounts that may exist and that cannot be extracted commercially with current technology. Another is that countries and companies often misrepresent the figures for political and commercial purposes. "Oil is money and . . . reserves are oil in the bank."[54]

In its most recent estimate, the IEA revised global oil demand upward by two hundred seventy thousand barrels per day to 78.3 mb/d, a 2.2 mb/d or almost three percent increase over last year, of which China's demand was revised upward by one hundred eighty thousand barrels to a record 6.14 mb/d.[55] China's surging demand growth, combined with its go-alone energy security policy, OPEC's production cutbacks, the IEA's reduction of the expected non-OPEC supply growth to less than 1.3 mb/d, and potential global supply instabilities will put increasing pressure on global energy supplies and prices, with resulting consequences for the U.S. economy.[56]

Geostrategic Implications

Assessment of the amount of oil reserves and the rate of extraction does not consider supply disruptions, such as the Arab oil embargoes of 1967, 1973, and 1979 and the more recent events in Iraq, Venezuela, and Nigeria. In a global crisis situation, China's lack of a meaningful strategic reserve and the absence of a true global safety net would put additional pressure on the market, not directly related to extraction capabilities.

According to some energy analysts, as its dependence on imported energy grows, China will become increasingly vulnerable to market disruptions. China considers the United States as its most likely potential adversary, with the capability to cut off energy sup-

plies. For this reason, it fears what it considers U.S. control of access to Middle East oil supplies. The U.S. military presence in the region contributes to this sense of insecurity. More specifically, according to Amy Myers Jaffe of the James A. Baker III Institute for Public Policy at Rice University in Houston, Texas, China is concerned that the United States will blockade either militarily or by diplomatic means China's access to oil if there were a military conflict over Taiwan, or the United States, having strong relationships with oil producers, will ask those producers to reduce supplies to China. China feels boxed in, and these perceptions drive China's policy.[57]

The IEA finds that China's oil policy has been to establish stable, long-term supply relationships "through reciprocal investment and non-oil trade. Its forays into Iran (with arms trade), Iraq and Sudan have raised eyebrows and concerns in other oil-importing capitals, notably Washington. The United States has energy security concerns as well, and fears that China's efforts may be destabilizing for the region as a whole." The IEA has also noted that "[r]ecently, China has tended to stress energy security more and diplomatic adventure less."[58]

Global oil demand has also skyrocketed, led by the United States and the PRC. China's growth has sparked economic recovery and higher oil demand in the rest of Asia. India, too, is an increasingly oil-dependent economy. Oil revenues are dollar denominated, motivating OPEC to keep supplies tight, and inventories are low. In addition, the United States has not yet recovered from the disruption in supply of crude and refined products from Venezuela last year, and there has been continued instability in Venezuela, Nigeria, and Indonesia. Royal Dutch Shell announced it was lowering by twenty percent its estimate of reserves, and there have been questions regarding the size of Saudi reserves.[59] Finally, this past March, OPEC announced a four percent cut in its oil output target, a move that is seen as confirming "an end of longstanding efforts to stabilize oil prices."[60] However, in a recent statement, Saudi oil minister Ali al-Naimi called for OPEC to raise its production ceiling by 1.5 million barrels per day.[61]

Some analysts believe that China's dependence on imported oil will bring the United States and the PRC closer as the result of common interests in Middle East stability. Others conclude that U.S. and PRC interests do not converge where oil is concerned, pointing out China's ties with oil-rich countries that are not on friendly terms with the United States.[62]

According to Philip Andrews-Speed, while the focus has been on external threats to China's energy security, "... the past year has shown that the real threats are domestic, rather than foreign. For more than twenty years, China has lacked a coherent energy policy. Energy strategies have been aggregated from the plans of individual energy industries. Coordination takes place only after the industry plans have already been drafted."[63]

According to Robert E. Ebel, "We are vulnerable to any event, anyplace, that affects the supply and demand of oil." In particular, the Middle East remains the world's low-cost producer and possessor of two-thirds of the global conventional oil supplies.[64] Meanwhile, non-OPEC resources are maturing, and OPEC market share

can only increase over the next two decades. Only by finding a viable alternative to oil will the consuming countries break their dangerous reliance on OPEC oil. Hydrogen power and bioethanol are two technologies that might provide an escape in a decade or two.[65]

RECOMMENDATIONS

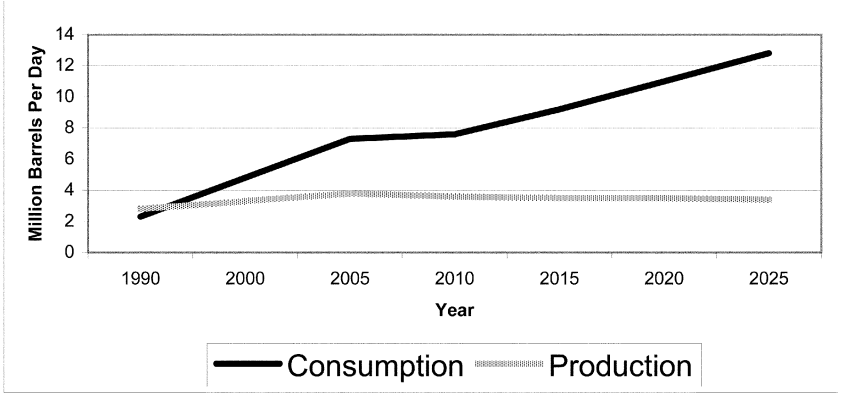
- The Commission recommends that Congress direct the secretaries of State and Energy to consult with the International Energy Agency with the objective of upgrading the current loose experience-sharing arrangement, whereby China engages in some limited exchanges with the organization, to a more structured arrangement whereby the PRC would be obligated to develop a meaningful strategic reserve, and coordinate release of stocks in supply disruption crises or speculator-driven price spikes.[66]
- The Commission recommends that Congress encourage work that increases bilateral cooperation in improving China's energy efficiency and environmental performance, such as further cooperation in Clean Coal Technology and waste-to-liquid-fuels programs, subject to any overriding concerns regarding technology transfers. Further, the Commission recommends that Congress direct the State and Energy departments, and the intelligence community, to conduct an annual review of China's international energy relationships and its energy practices during times of global energy crises to determine whether such U.S. assistance continues to be justified.
- The Commission recommends that the Commerce Department and USTR investigate whether China's dual pricing system for coal and any other energy sources constitutes a prohibited subsidy under the WTO and include this assessment in the Commerce/USTR report on subsidies recommended in Chapter 1.

Appendix A China's Energy Trends, 1985–2020

	1985	1990	1995	2001	2005	2010	2015	2020	Average Annual Percent Change 1985–2020
Energy Consumption				**(Quadrillion Btu)**					
Oil	4.0	4.9	7.0	10.2	11.3	13.4	15.8	19.2	4.6
Natural Gas	0.5	0.6	0.7	1.1	1.6	2.5	4.2	5.0	6.6
Coal	16.7	20.3	25.5	25.4	26.5	33.3	38.9	46.2	3.0
Nuclear	10.0	0.0	0.1	0.2	0.6	0.7	1.3	1.3	N/A
Renewables	1.0	1.3	1.9	2.8	3.2	4.6	5.2	5.9	5.3
Total	**22.2**	**27.0**	**35.2**	**39.7**	**43.2**	**54.4**	**65.5**	**77.6**	**3.6**
Oil (mbbd)	1.9	2.3	3.4	5.0	5.5	6.5	7.7	9.4	4.7
Natural Gas (tcf)	0.5	0.5	0.6	1.0	1.4	2.3	3.8	4.5	6.8
Coal (mst)	921	1,124	1,498	1,383	1,442	1,811	2,115	2,511	2.9
Nuclear (bkwh)	0	0	12	17	57	66	129	131	N/A
Renewables (quads)	1.0	1.3	1.9	2.8	3.2	4.6	5.2	5.9	5.3
Net Electricity Consumption (bkwh)	**364**	**551**	**883**	**1,312**	**1,545**	**1,966**	**2,428**	**2,986**	**6.2**
Energy Use for Electricity Generation				**(Quadrillion Btu)**					
Oil	0.8	0.7	0.6	0.7	0.8	0.9	1.1	1.3	1.5
Natural Gas	0.0	0.0	0.0	0.1	0.3	0.7	1.0	1.0	13.0
Coal	3.4	5.4	8.4	13.7	14.5	19.3	23.9	28.7	6.3
Nuclear	0.0	0.0	0.1	0.2	0.6	0.7	1.3	1.3	N/A
Renewables	1.0	1.3	1.9	2.8	3.2	4.6	5.2	5.9	5.3
Total	**5.1**	**7.4**	**11.1**	**17.4**	**19.4**	**26.2**	**32.5**	**38.3**	**5.9**
Carbon Dioxide Emissions				**(Million Metric Tons Carbon Equivalent)**					
Oil	76	94	132	175	194	229	271	330	4.3
Natural Gas	8	8	10	18	26	40	68	81	7.0
Coal	424	514	645	639	668	840	980	1,164	2.9
Total	**508**	**617**	**788**	**832**	**888**	**1,109**	**1,319**	**1,574**	**3.3**
Energy Production				*Note: EIA currently only projects oil supply.*					
Oil (mbbd)	2.5	2.8	3.0	3.2	3.5	3.6	3.5	3.5	1.0
Natural Gas (tcf)	0.5	0.5	0.6	1.1	N/A	N/A	N/A	N/A	—
Coal (mst)	962	1,190	1,537	1,459	N/A	N/A	N/A	N/A	—

Source: U.S.-China Economic and Security Review Commission, *Hearing on China's Energy Needs and Strategies*, testimony of Guy Caruso of EIA, October 30, 2003, p. 18.

Appendix B China's Projected Oil Production v. Consumption, 1990–2020



Source: International Energy Outlook, 2004.

Appendix C China Energy Comparisons, 1985–2020

	1985	1990	1995	2001	2005	2010	2015	2020	Average Annual Percent Change 1985–2020
Energy Consumption				**(Quadrillion Btu)**					
China	22.2	27.0	35.3	39.6	43.2	54.4	65.5	77.6	3.6
United States	76.7	84.6	91.5	97.0	103.2	113.3	121.9	130.1	1.5
World	311.1	348.4	368.7	404.1	433.3	480.6	531.7	583.0	1.8
Oil Consumption				**(Million Barrels per Day)**					
China	1.9	2.3	3.4	5.0	5.5	6.5	7.7	9.4	4.7
United States	15.7	17.0	17.7	19.6	20.5	23.0	25.2	27.1	1.6
World	60.1	66.1	70.0	77.1	81.1	89.7	98.8	108.2	1.7
Energy Consumption per Capita				**(Million Btu per Person)**					
China	20.7	23.4	28.9	30.8	32.7	39.8	46.4	53.7	2.8
United States	316.4	331.9	340.5	348.9	358.1	377.2	389.9	400.0	0.7
World	64.5	66.3	65.1	66.0	67.4	70.5	73.9	77.0	0.5
Energy Intensity				**(Thousand Btu per 1997 U.S. Dollar of GDP)**					
China	75.9	63.2	46.9	33.0	27.0	24.8	22.2	19.7	−3.8
United States	13.2	12.4	11.9	10.3	9.8	9.1	8.4	7.8	−1.5
World	15.1	14.3	13.7	12.5	11.9	11.2	10.6	10.0	−1.2
Carbon Intensity				**(Metric Tons Carbon Equivalent per 1997 U.S. Dollar of GDP)**					
China	1,736	1,445	1,047	693	555	506	447	400	−4.1
United States	213	198	185	166	154	144	134	124	−1.5
World	258	241	223	202	191	180	170	161	−1.3

Source: U.S.-China Economic and Security Review Commission, *Hearing on China's Energy Needs and Strategies*, testimony of Guy Caruso of EIA, October 30, 2003, p. 19.

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66. The IEA is an autonomous body within the OECD. OECD membership is limited to countries that can demonstrate its attachment to the basic values shared by all OECD members: an open market economy, democratic pluralism, and respect for human rights.